DOCUMENT RESUME

ED 133 612 CE 009 851

TITLE Microfiche Set of Documents Announced in "Abstracts of Instructional and Research Materials in Vocational and Technical Education" (AIM/ARM), Volume 9, Number 6.

INSTITUTION Ohio State Univ., Columbus. Center for Vocational Education.

SPONS AGENCY Bureau of Occupational and Adult Education (DHEW/OE), Washington, D.C.

NOTE 3,281p.

EDRS PRICE MF-$6.01 Plus Postage. HC Not Available from EDRS.

DESCRIPTORS Agricultural Education; Business Education; Career Education; Distributive Education; Documentation; *Educational Research; Health Occupations Education; Home Economics Education; Industrial Arts; *Instructional Materials; *Microfiche; Resource Materials; *Technical Education; Trade and Industrial Education; *Vocational Education

ABSTRACT

Documents announced in the Volume 9, Number 6 issue of "Abstracts of Instructional and Research Materials in Vocational and Technical Education" (AIM/ARM) and not available under individual ED numbers are included in this microfiche set. Microfiche availability for these documents is shown in the VT-ED Number Cross Reference List included in AIM/ARM, Volume 10, Number 3. The microfiche set is arranged in the following sequence: (1) A VT number list of those documents in the microfiche set for Volume 9, Number 6, and (2) the full text of documents listed, in ascending VT-number order. The documents are filmed continuously. (Author)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

AIM/ARM, VT-ERIC MICROFICHE SET

Microfiche Set of Documents Announced in

Abstracts of Instructional and Research Materials in

Vocational and Technical Education (AIM/ARM)

Volume 9, Number 6

1976

The Center for Vocational Education
The Ohio State University
1960 Kenny Road, Columbus, Ohio 43210

TABLE OF CONTENTS

INTRODUCTION ii

VT NUMBER LIST 1

INTRODUCTION

This set of microfiche consists of the documents which are announced in Abstracts of Instructional and Research Materials in Vocational and Technical Education (AIM/ARM), Volume 9, Number 6, 1976 and are not available individually by ED number. These documents are grouped in VT-number sequence and filmed continuously as a microfiche set (AIM/ARM VT-ERIC SET).

Microfiche availability of documents in this set is shown in the VT-ED Number Cross Reference List in Volume 10, Number 1 of AIM/ARM.

Microfiche copies of individual documents in this set may be obtained by reproducing the appropriate microfiche on microfiche reproduction equipment.

Hardcopy of individual documents in this set may be available from the sources listed in the resume for each document.

This publication was prepared pursuant to a contract with the Bureau of Occupational and Adult Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgement in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Bureau of Occupational and Adult Education or U.S. Office of Education position or policy.

VT NUMBER LIST

OF DOCUMENTS IN THIS MICROFICHE SET

AIM/ARM, Volume 9, Number 6

AIM Section	ARM Section
VT 103 413	VT 103 499
VT 103 458	VT 103 500
VT 103 459	VT 103 502
VT 103 469	VT 103 506
VT 103 470	VT 103 509
VT 103 471	VT 103 510
VT 103 472	VT 103 511
VT 103 474	VT 103 512
	VT 103 532
	VT 103 533
	VT 103 539
	VT 103 547
	VT 103 574
	VT 103 576
	VT 103 577
	VT 103 578
	VT 103 580
	VT 103 584
	VT 103 586
	VT 103 588
	VT 103 589

VT NR.	TITLE	AUTHOR	CARD FR.
103 413	HEALTH OCCUPATIONS ARTICULATION AND ADVANCED STANDING PATTERN DEVELOPMENT AND PLANNING. FINAL REPORT.	NAGG, KRISTIN	2 A03
103 458	1977 TELEVISION.		7 A03
103 459	AUDIOVISUAL LIBRARY RESOURCE LIST. CAREER EDUCATION PROJECT.		8 B10
103 469	ENVIRONMENT. JUNIOR HIGH CAREER EDUCATION HANDBOOK.		9 A13
103 470	MARKETING AND DISTRIBUTION. JUNIOR HIGH CAREER EDUCATION HANDBOOK.		11 B09
103 471	COMMUNICATION AND MEDIA. JUNIOR HIGH CAREER EDUCATION HANDBOOK.		12 C09
103 472	VOCATIONAL AGRICULTURE II: A CURRICULUM GUIDE. TENTH GRADE.	PATTON, BOB;	14 F01
103 474	SCIENCE CAREER EDUCATION: A COURSE OF STUDY. EXPERIMENTAL EDITION, 1975.		20 E14
103 499	CAREER PLACEMENT BY WORK SAMPLING FOR THE HANDICAPPED. A RESEARCH REPORT.	HONSBERGER, T	21 F02
103 500	JOB SKILLS NEEDED IN THE AREA OF PLASTIC LENS FABRICATION. FINAL REPORT.	SCHRADER, MAR	23 B08
103 502	FOOD SERVICE SYSTEM PLANNING.	GEYHART, WOOD	23 D12
103 508	SCHOOL BASED JOB PLACEMENT SERVICE MODEL. FINAL REPORT, 1975-76.	FEHNEL, BARRY	23 F07
103 509	JOB PLACEMENT. FINAL REPORT.	THOMAS, DON	24 A13
103 510	COORDINATION OF SECONDARY AND POST SECONDARY CURRICULUM. FINAL REPORT.	THOMAS, DON	24 C11
103 511	MINING AND RECLAMATION COOPERATIVE EDUCATION PROGRAM. ANNUAL REPORT.		24 E02
103 512	EFFECTIVENESS OF VOCATIONAL TECHNICAL TRAINING IN HEALTH EDUCATION. RESEARCH AND DEVELOPMENT SERIES C/76-1.	HAYES, KENNET	25 D09
103 532	CREATING A CAREER: A PRE-VO-TECH PROGRAM. FINAL REPORT.	DZUBAK, CATHY	25 G02
103 533	HEMPFIELD PILOT PROJECT FOR EDUCABLE MENTALLY RETARDED (EMR) AND REGULAR CLASS STUDENTS. FINAL REPORT.	CACI, WILLIAM	26 A10
103 539	PROFILE OF U.S. COMPREHENSIVE HEALTH PLANNING AREAS. AGRICULTURAL ECONOMIC REPORT NO. 339.	FITZWILLIAMS,	26 E11
103 547	PROJECT BRIDGES: SPANNING THE GAP BETWEEN EDUCATION AND EARNING A LIVING. INTERIM EVALUATION REPORT.		26 E13
103 574	FOLLOW-UP SURVEY 1975 GRADUATES. JOB PLACEMENT AND FOLLOW-UP COMPONENT. CAREER EDUCATION PROJECT.		27 A08
103 576	NURSING AND AUXILIARY NURSING ARTICULATION.	DAMBACH, KARE	28 B04
103 577	INDIVIDUALIZED, PERFORMANCE-BASED CURRICULUM AT THE MINNEAPOLIS AREA VOCATIONAL TECHNICAL INSTITUTE. INTERIM REPORT.	ANDERSON, FLO	29 F06
103 578	DEVELOPMENT AND IMPLEMENTATION OF CAREER EDUCATION IN THE PUBLIC SCHOOLS OF VIRGINIA. FINAL REPORT.	MOOREFIELD, J	31 A03
103 580	VOCATIONAL EDUCATION POSSIBILITIES IN THE PETROLEUM INDUSTRY. FINAL REPORT.	CRUMRINE, MYR	31 B02

VT NR.	TITLE	AUTHOR	CARD FR.
103 584	PLANNING PROCESS MANUAL FOR VOCATIONAL EDUCATION: UTILIZING THE MANPOWER MANAGEMENT INFORMATION SYSTEM. EXPERIMENTAL EDITION, 1975.		32 A03
103 586	MODEL FOR THE IMPLEMENTATION OF A BILINGUAL VOCATIONAL EDUCATION TRAINING PROGRAM.		33 A10
103 588	OCCUPATIONAL EDUCATION PROGRAM ARTICULATION BETWEEN SECONDARY VOCATIONAL EDUCATION CENTERS AND GREENVILLE TECHNICAL COLLEGE. FINAL PROGRAM PERFORMANCE REPORT.		34 A03
103 589	FINAL EVALUATION REPORT ON CAREER ALTERNATIVES MODEL FOR 1975-76.		35 C05

TITLE	AUTHOR	VT NR.	CARD FR.
AUDIOVISUAL LIBRARY RESOURCE LIST. CAREER EDUCATION PROJECT.		103 459	8 B10
CAREER PLACEMENT BY WORK SAMPLING FOR THE HANDICAPPED. A RESEARCH REPORT.	HONSBERGER, T	103 499	21 F02
COMMUNICATION AND MEDIA. JUNIOR HIGH CAREER EDUCATION HANDBOOK.		103 471	12 C09
COORDINATION OF SECONDARY AND POST SECONDARY CURRICULUM. FINAL REPORT.	THOMAS, DON	103 510	24 C11
CREATING A CAREER: A PRE-VO-TECH PROGRAM. FINAL REPORT.	DZUBAK, CATHY	103 532	25 G02
DEVELOPMENT AND IMPLEMENTATION OF CAREER EDUCATION IN THE PUBLIC SCHOOLS OF VIRGINIA. FINAL REPORT.	MOORFIELD, J	103 578	31 A03
EFFECTIVENESS OF VOCATIONAL TECHNICAL TRAINING IN HEALTH EDUCATION. RESEARCH AND DEVELOPMENT SERIES C/76-1.	HAYES, KENNET	103 512	25 D09
ENVIRONMENT. JUNIOR HIGH CAREER EDUCATION HANDBOOK.		103 469	9 A13
FINAL EVALUATION REPORT ON CAREER ALTERNATIVES MODEL FOR 1975-76.		103 589	35 C06
FOLLOW-UP SURVEY 1975 GRADUATES. JOB PLACEMENT AND FOLLOW-UP COMPONENT. CAREER EDUCATION PROJECT.		103 574	27 A08
FOOD SERVICE SYSTEM PLANNING.	GEPHART, WOOD	103 502	23 D12
HEALTH OCCUPATIONS ARTICULATION AND ADVANCED STANDING PATTERN DEVELOPMENT AND PLANNING. FINAL REPORT.	NAGG, KRISTIN	103 413	2 A03
HEMPFIELD PILOT PROJECT FOR EDUCABLE MENTALLY RETARDED (EMR) AND REGULAR CLASS STUDENTS. FINAL REPORT.	CACI, WILLIAM	103 533	26 A10
INDIVIDUALIZED, PERFORMANCE-BASED CURRICULUM AT THE MINNEAPOLIS AREA VOCATIONAL TECHNICAL INSTITUTE. INTERIM REPORT.	ANDERSON, FLO	103 577	29 F06
JOB PLACEMENT. FINAL REPORT.	THOMAS, DON	103 509	24 A13
JOB SKILLS NEEDED IN THE AREA OF PLASTIC LENS FABRICATION. FINAL REPORT.	SCHRADER, MAR	103 500	23 B08
MARKETING AND DISTRIBUTION. JUNIOR HIGH CAREER EDUCATION HANDBOOK.		103 470	11 B09
MINING AND RECLAMATION COOPERATIVE EDUCATION PROGRAM. ANNUAL REPORT.		103 511	24 E02
MODEL FOR THE IMPLEMENTATION OF A BILINGUAL VOCATIONAL EDUCATION TRAINING PROGRAM.		103 586	33 A10
NURSING AND AUXILIARY NURSING ARTICULATION.	DAMBACH, KARE	103 576	28 B04
OCCUPATIONAL EDUCATION PROGRAM ARTICULATION BETWEEN SECONDARY VOCATIONAL EDUCATION CENTERS AND GREENVILLE TECHNICAL COLLEGE. FINAL PROGRAM PERFORMANCE REPORT.		103 588	34 A03
PLANNING PROCESS MANUAL FOR VOCATIONAL EDUCATION: UTILIZING THE MANPOWER MANAGEMENT INFORMATION SYSTEM. EXPERIMENTAL EDITION, 1975.		103 584	32 A03
PROFILE OF U.S. COMPREHENSIVE HEALTH PLANNING AREAS. AGRICULTURAL ECONOMIC REPORT NO. 339.	FITZWILLIAMS,	103 539	26 B11
PROJECT BRIDGES: SPANNING THE GAP BETWEEN EDUCATION AND EARNING A LIVING. INTERIM EVALUATION REPORT.		103 547	26 E13
SCHOOL BASED JOB PLACEMENT SERVICE MODEL. FINAL REPORT, 1975-76.	FEHNEL, BARRY	103 506	23 F07

TITLE	AUTHOR	VT NR.	CARD FR.
SCIENCE CAREER EDUCATION: A COURSE OF STUDY. EXPERIMENTAL EDITION, 1975.		103 474	20 E14
VOCATIONAL AGRICULTURE II: A CURRICULUM GUIDE. TENTH GRADE.	PATTON, BOB;	103 472	14 F01
VOCATIONAL EDUCATION POSSIBILITIES IN THE PETROLEUM INDUSTRY. FINAL REPORT.	CRUMRINE, MYR	103 580	31 B02
1977 TELEVISION.		103 458	7 A03

AUTHOR	TITLE	VT NR.	CARD FR.
ANDERSON, FLO	INDIVIDUALIZED, PERFORMANCE-BASED CURRICULUM AT THE MINNEAPOLIS AREA VOCATIONAL TECHNICAL INSTITUTE. INTERIM REPORT.	103 577	29 F06
CACI, WILLIAM	HEMPFIELD PILOT PROJECT FOR EDUCABLE MENTALLY RETARDED (EMR) AND REGULAR CLASS STUDENTS. FINAL REPORT.	103 533	26 A10
CRUMRINE, MYR	VOCATIONAL EDUCATION POSSIBILITIES IN THE PETROLEUM INDUSTRY. FINAL REPORT.	103 580	31 B02
LAMBACH, KARE	NURSING AND AUXILIARY NURSING ARTICULATION.	103 576	28 B04
DZUBAK, CATHY	CREATING A CAREER: A PRE-VC-TECH PROGRAM. FINAL REPORT.	103 532	25 G02
FEHNEL, BARRY	SCHOOL BASED JOB PLACEMENT SERVICE MODEL. FINAL REPORT, 1975-76.	103 506	23 F07
FITZWILLIAMS,	PROFILE OF U.S. COMPREHENSIVE HEALTH PLANNING AREAS. AGRICULTURAL ECONOMIC REPORT NO. 339.	103 539	26 B11
GEPHART, WOOD	FOOD SERVICE SYSTEM PLANNING.	103 502	23 D12
HAYES, KENNET	EFFECTIVENESS OF VOCATIONAL TECHNICAL TRAINING IN HEALTH EDUCATION. RESEARCH AND DEVELOPMENT SERIES C/76-1.	103 512	25 D09
HONSBERGER, T	CAREER PLACEMENT BY WORK SAMPLING FOR THE HANDICAPPED. A RESEARCH REPORT.	103 499	21 F02
MOOREFIELD, J	DEVELOPMENT AND IMPLEMENTATION OF CAREER EDUCATION IN THE PUBLIC SCHOOLS OF VIRGINIA. FINAL REPORT.	103 578	31 A03
NAGG, KRISTIN	HEALTH OCCUPATIONS ARTICULATION AND ADVANCED STANDING PATTERN DEVELOPMENT AND PLANNING. FINAL REPORT.	103 413	2 A03
PATTON, BOB;	VOCATIONAL AGRICULTURE II: A CURRICULUM GUIDE. TENTH GRADE.	103 472	14 F01
SCHRADER, MAR	JOB SKILLS NEEDED IN THE AREA OF PLASTIC LENS FABRICATION. FINAL REPORT.	103 500	23 B08
THOMAS, DON	COORDINATION OF SECONDARY AND POST SECONDARY CURRICULUM. FINAL REPORT.	103 510	24 C11
THOMAS, DON	JOB PLACEMENT. FINAL REPORT.	103 509	24 A13

ACCESSION NUMBER: VT103413

PUBLICATION DATE: 30JUN76

TITLE: HEALTH OCCUPATIONS ARTICULATION AND ADVANCED STANDING PATTERN DEVELOPMENT AND PLANNING. FINAL REPORT.

PERSONAL AUTHOR: NAGG, KRISTIN; LAMPING, R.G.

DESCRIPTOR: *CURRICULUM GUIDES; POST SECONDARY EDUCATION; *ARTICULATION (PROGRAM); *PRACTICAL NURSING; HEALTH OCCUPATIONS EDUCATION; TEACHER DEVELOPED MATERIALS; UNIT PLAN; BEHAVIORAL OBJECTIVES; LEARNING ACTIVITIES; BIBLIOGRAPHIES; *CURRICULUM DEVELOPMENT; *COURSE DESCRIPTIONS

IDENTIFIER: PITTSBURGH CITY SCHOOLS

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 466p.

ABSTRACT: THE PURPOSE OF THE PROJECT WAS TO RESTRUCTURE THE HEALTH ASSISTANT AND PRACTICAL NURSING CURRICULUMS TO ENABLE GRADUATES OF SECONDARY PROGRAMS TO ENTER AT A SPECIFIED ADVANCED LEVEL. THE DOCUMENT CONSISTS OF THREE PARTS. PART I IS THE FINAL REPORT DESCRIBING PROJECT GOALS AND ACTIVITIES. PART II, THE PROPOSED PLAN FOR CURRICULUM REVISION, CONTAINS THE RATIONALE FOR PROPOSED CHANGES AND A COMPARISON OF THE PRESENT PROGRAM WITH THE REVISED ONE ON SEVERAL FACTORS, INCLUDING PHILOSOPHY, PROGRAM OBJECTIVES, SUMMARY OF HOURS, COURSE DESCRIPTIONS, AND ARTICULATION PLAN. PART III IS A CURRICULUM GUIDE (387 PAGES), THE PRELIMINARY VERSION OF THE 1600-HOUR COURSE OF STUDY IN PRACTICAL NURSING. THE PROGRAM OFFERS SEQUENTIAL LEVELS OF LEARNING AND EXPERIENCE WHICH PERMIT INDIVIDUALS TO PROGRESS THROUGH THESE LEVELS WITHOUT DUPLICATING PREVIOUSLY ACQUIRED KNOWLEDGE AND SKILLS. THE THREE LEVELS ARE: FUNDAMENTALS OF HEALTH CARE, HUMAN HEALTH CARE I, AND HUMAN HEALTH CARE II. HUMAN HEALTH CARE I CONSISTS OF TWO MODULES, MEDICAL AND SURGICAL NURSING, AND MATERNITY-CHILD HEALTH NURSING. THE TWO MODULES AT THE THIRD LEVEL ARE ADVANCED MEDICAL-SURGICAL NURSING AND SPECIALIZED NURSING OPPORTUNITIES. EACH INSTRUCTIONAL UNIT INCLUDES AN INTRODUCTION, OBJECTIVES, RESOURCES, LEARNING ACTIVITIES AND DEVELOPMENTAL CONCEPT FOR EACH OF THE STATED OBJECTIVES, AND AN EVALUATION. AN INTRODUCTORY SECTION, BIBLIOGRAPHY, AND LIST OF AUDIOVISUAL AIDS ARE INCLUDED IN THE GUIDE. (RG)

INSTITUTION NAME: PITTSBURGH PUBLIC SCHOOLS, PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPARTMENT OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 413

FINAL REPORT

HEALTH OCCUPATIONS ARTICULATION AND ADVANCED STANDING PATTERN DEVELOPMENT AND PLANNING

Project No. 19 - 5804

June 30, 1976

BOARD OF PUBLIC EDUCATION
PITTSBURGH, PENNSYLVANIA

VT 103 413

2

FINAL REPORT

HEALTH OCCUPATIONS ARTICULATION AND ADVANCED STANDING PATTERN DEVELOPMENT AND PLANNING

Project No. 19 - 5804

Kristin Nagg
Project Coordinator
Pittsburgh Public Schools
341 South Bellefield Avenue
Pittsburgh, Pennsylvania 15213

R. G. Lamping, Director
Division of Occupational, Vocational, and Technical Education
Pittsburgh Public Schools
341 South Bellefield Avenue
Pittsburgh, Pennsylvania 15213

June 30, 1976

PENNSYLVANIA DEPARTMENT OF EDUCATION

BUREAU OF VOCATIONAL EDUCATION

RESEARCH COORDINATING UNIT

CE 009 591

ACKNOWLEDGMENTS

The Pittsburgh Board of Public Education wishes to express its appreciation to the following individuals without whose support this project would not have been possible:

John W. Struck
State Director
Bureau of Vocational Education
Pennsylvania Department of Education

Clarence A. Dittenhafer
Research Associate II
Research Coordinating Unit
Bureau of Vocational Education
Pennsylvania Department of Education

A. Louise Harding
Senior Program Specialist
Health Occupations
Bureau of Vocational Education
Pennsylvania Department of Education

Leonard J. Liguori
Vocational Field Consultant
Business Education
Pennsylvania Department of Education
Regional Office

Eleanor Deigner
Vocational Field Consultant
Health Occupations
Pennsylvania Department of Education
Regional Office

TABLE OF CONTENTS

I. Introduction 1

II. Curriculum Revision 2

III. Articulation and Advanced Standing Pattern 3

IV. Conclusion 5

V. Recommendations 5

Appendices

A. In-service Workshop Agendas 9

B. Proposed Practical Nursing Course Outline 15

C. Proposed Health Assistant Course Outline 30

Supplementary Materials

- Practical Nursing Program Course of Study
- Proposed Plan for Curriculum Revision

ABSTRACT

I. INTRODUCTION

The purpose of this project was to plan and develop a Health Assistant - Practical Nursing Articulation Pattern which would enable high school health assistant students to enter the practical nursing program at a specific advanced level without the vast duplication and repetitious teaching now required to train in separate programs.

While there has been continuing evidence of commitment to the concept of open-ended career development, very limited action has been taken for the provision of an articulation pattern between secondary and post-secondary health occupations skill training. Hopefully, the proposed curriculum plan of the Pittsburgh Public Schools will serve as a model for meaningful program articulation that will encourage other health occupation educators in the Commonwealth to consider for adoption.

The specific project objectives were to:

1. Establish a teacher coordinating committee comprised of faculty members from both the secondary and post-secondary health occupation programs.
2. Strengthen the existing practical nursing program by developing a correlated curriculum based on level objectives.
3. Present a health assistant program which will offer the graduate options as well as assuring marketable skills at the high school level.

4. Plan a program that will afford educational opportunities for program articulation for the health assistant student and advanced standing placement for career mobility from other health occupations.

This project began with a workshop involving state health occupations supervisory personnel and the total faculty. This initial meeting resulted in an acute realization that the present practical nursing curriculum would have to undergo a total revision based on level objectives before an articulation pattern could become more than an idea. More importantly perhaps, this meeting generated enthusiasm among the faculty which continued throughout the project.

II. CURRICULUM REVISION

A series of workshops was conducted in which the involved personnel were concerned with identifying the rationale for the curriculum change. The first step in the curriculum revision was to re-examine the present philosophy. Through thoughtful analysis and considerable discussion a new philosophy, which the faculty finally agreed reflected their beliefs as well as those of the Pittsburgh Board of Public Education, was proposed. Then, general program objectives were developed.

Early in the project the faculty, divided into groups according to individual interests and strengths, began to work with more concrete aspects of the curriculum. These aspects included general curriculum design, levels of learning experiences, and specific objectives for each level. Each group then identified the

content essential to each area; then, comparisons were made and concepts rearranged which would permit students to progress through the levels without duplicating previously acquired knowledge and skills.

Several intense workshops were provided during the project in which committee progress reports were circulated to all faculty for their review and comment.

After meaningful content appropriate to the specific levels of learning was identified, five faculty members were selected to finalize level objectives and student learning experiences. Sequential content had already been specified by the total faculty; however, the writing committee had the tasks of developing unit objectives, specific student learning activities and a built-in unit evaluation system which clearly stated the competencies the student was expected to acquire after completing the program.

Upon completion of the actual curriculum writing phase, which at times seemed an endless enterprise, copies were given to each faculty member to examine. Suggested changes were discussed and adaptations made. The curriculum presented is a preliminary one. Upon approval from the State Board of Nurse Examiners, the plan will be to implement and work with this curriculum for a year before a final edition is printed.

III. ARTICULATION AND ADVANCED STANDING PATTERN

As an important goal of the newly designed curriculum is to present the vehicle and stimulus for continued personal and professional growth; therefore, the next phase of the project was to develop a method by which adequate provi-

sion for articulation and advanced placement was clearly identified.

Having arrived at consensus about articulation and advanced standing differentiation, the faculty concentrated their efforts on the criteria essential for applicants electing to either articulate or be granted advanced standing in the practical nursing program.

Each of the three levels of the newly developed curriculum is designed to offer career opportunities indicated as spin-in and spin-off areas of achievement. Certainly the emphasis of the proposed curriculum is to have the student enter the program, complete the course, and become a licensed practical nurse. In addition, the proposed plan allows individuals from various health programs such as nursing assistants, practical nurses license by waiver, and corpsmen who wish to qualify for advanced standing at the first or second entry level to do so by applying and meeting the standards of the level best suited for the individual.

The secondary health assistant program was adapted to Level I of the practical nursing program. The objectives and content of both programs are identical in the first level, although placement and presentation differ. Students completing the high school course have the option of entering the health industry with entry-level skills or articulating into Level II of the practical nursing program.

Conversely, students who are enrolled in the practical nursing program could voluntarily or by recommendation of the faculty, withdraw from the program at the end of the first or second level and be qualified to find employment

in specific health agencies in a role other than that of a practical nurse.

The requirements established for articulating and first and second level entry applicants represents the thinking and endeavor of the total faculty.

Recently an intense two-day workshop was provided to develop written comprehensive examinations and selected skills situations to be administered to applicants desiring advanced placement in the practical nursing program. These testing materials are nearly completed and should be reviewed and finalized in the near future.

IV. CONCLUSION

The proposed curriculum and articulation pattern has been previewed by the state health occupations personnel and has been sent to the State Board of Nurse Examiners for review and approval at their July, 1976 meeting. Hopefully, initial implementation of the plan will begin in September, 1976.

V. RECOMMENDATIONS

Upon implementation, the faculty should make a concerted effort to seek answers to the following questions: will the newly developed practical nursing curriculum based on level objectives (1) afford educational opportunities for program articulation for the health assistant student, (2) advanced placement for career mobility from other health occupations, (3) and articulation with advanced nursing education programs? In addition, does this curriculum offer educational reinforcement through vocational skill competencies at spin-out portals leading to employment in the health industry? If so, what is the nature of these opportunities and to what extent

do these opportunities exist?

For total implementation of the newly designed curriculum and articulation pattern the following recommendations are suggested:

1. A long range organizational plan for implementation procedures should be developed.
2. In-service workshops for the total faculty should be provided at specific intervals in the implementation process.
3. Newly designed comprehensive written and practical examinations to be administered to applicants seeking advanced standing should be evaluated to check reliability and validity adequacy.
4. Measurement and evaluative techniques should be selected and employed in the maintenance of careful records of student theory, skills, and attitudes. These findings should be described, analyzed, and interpreted.
5. Evaluation forms should be developed and given to both teachers and students upon completion of each major unit of the curriculum to indicate progress of the program.
6. As each level of the curriculum is implemented, strengths and weaknesses should be identified. If sequential learning is taking place, then the students will be able to achieve the established objectives of each level and upon completion of the course, the student should achieve the total program objectives.
7. Evaluation of the health assistant and advanced placement student's

progress as compared to the regularly enrolled practical nursing students should be a continual process. Comparison studies should be employed.

8. Active feedback from professionals in health care facilities should be collected, analyzed, and recorded.

9. Results of the practical nurse state licensure examination should be utilized as an evaluative measure of the adequacy of the curriculum from the point of view of how well the graduate met the legal requirements for nursing practice at the licensed practical nurse level.

10. Questionaires should be developed and sent to employers and graduates after six months and one year of employment in the health industry in order to provide a meaningful basis for curriculum evaluation.

11. An "exchange of ideas" meeting with community college personnel should be initiated for the purpose of establishing a coordinating committee to adapt specific criteria for articulation of the practical nurse/registered nurse associate degree programs.

12. The program design, curriculum outline, educational and instructional materials, and relevant data should be distributed to interested Pennsylvania school districts through the curriculum department of the Pittsburgh Board of Public Education in accordance with the established policy.

Finally, additional recommendations should be formulated which will furnish a basis for further implementation, including modifications revisions, so that optimal progress of students and effectiveness of the total program can be realized.

APPENDICES

PITTSBURGH PUBLIC SCHOOLS
DEPARTMENT OF SECONDARY SCHOOLS/CONNELLEY SKILL-LEARNING CENTER
DIVISION OF OCCUPATIONAL, VOCATIONAL, AND TECHNICAL EDUCATION

TENTATIVE SCHEDULE FOR CURRICULUM REVISION OF THE
PITTSBURGH PUBLIC SCHOOLS PRACTICAL NURSING PROGRAM

Purpose: To restructure both the Health Assistant and Practical Nursing curricula so that levels of learning and competencies are easily recognized and that graduating secondary Health Assistant students have the option of entering the practical nursing program at a specific advanced level.

Thursday, September 5, 1975

Board Room, Administration Building	1:00-1:05 p.m.	Robert G. Lamping, Director Occupational, Vocational, Technical Division "Introduction"
	1:05-3:00 p.m.	A. Louise Harding, Senior Program Specialist, Health Occupations, Pennsylvania Department of Education "Trends and New Ideas in Practical Nursing Education"
	3:00-3:15 p.m.	(Break)
	3:15-3:30 p.m.	Louise Allayaud, Coordinator Pittsburgh Public Schools Practical Nursing Program "Practical Nursing Curriculum Revision Proposed Plan"
	3:30-4:55 p.m.	Francis J. Rifugiato, Director, Division of Educational Program Development "Considerations in Writing a Course of Study"
	4:55-5:00 p.m.	Kristin Nagg, Coordinator Secondary Health Occupations In-Service Curriculum Procedures

Saturday, September 27, 1975

Board Room, Administration Building	9:00 a.m. - 12:00 p.m.	Group Sessions

GROUP	CURRICULUM AREA	MEMBERS
Group I	Basic	A. Donovan, J. Ferraro, L. Kaib, K. Evans, W. Majors
Group II	Intermediate	M. Abel, P. Basial, A. Varriano, C. Gardini, L. Pears
Group III	Advanced	J. Abbott, J. Albert, F. Dreibelbis, P. Honus
Group IV	Maternal Child Nursing	B. Burgwin, M. Capalbo, M. Cattley, R. O'Keefe, B. Hughey

Content: Identification and depth of topical areas
Examples of learning activities
Methods of student evaluation
Audio-Visual Materials

Note: Reference materials will be available; however, if you have preferred textbooks etc., please bring them.

12:00-1:00 p.m.	Lunch
1:00-3:00 p.m.	Continuation of Area Curriculum Development

Saturday, November 1, 1975

Board Room, Administration Building	9:00 a.m. - 12:00 p.m.	Group Sessions

Content: Curriculum Coordination

GROUP	PROGRAM AREA	MEMBERS
Group I	Curriculum Review	P. Basial, B. Burgwin, A. Donovan, K. Evans, W. Majors
Group II	Philosophy and Objectives	J. Abbott, M. Abel, J. Ferraro, P. Hom[illegible]
Group III	Clinical Experiences	J. Albert, M. Capalbo, M. Cattley, C. Gardi[illegible], B. Hughey
Group IV	Advanced Standing Requirements	F. Dreibelbis, A. Varriano, L. Kaib, R. O'Keefe, L. Pears

12:00-1:00 p.m. Lunch

1:00-3:00 p.m. Continuation of morning assignments

Curriculum Writing Sessions
Board Room,
Administration Building — 8:30 a.m. - 3:30 p.m.

Group I - 1 H.A. Teacher — September 29, 30 October 1, 2, 3 1975
2 P.N. Teachers — October 6, 7, 8, 9, 10 1975

Group II - 2 P.N. Teachers — October 13, 14, 15, 16, 17 1975
October 20, 21, 22, 23, 24 1975

Saturday Sessions
1 H.A. Teacher
4 P.N. Teachers — October 25, 1975

THANK YOU FOR YOUR COOPERATION.

PITTSBURGH PUBLIC SCHOOLS
DIVISION OF OCCUPATIONAL, VOCATIONAL, AND TECHNICAL EDUCATION

MEMORANDUM

TO: All P.N. Faculty Members

FROM: H.A./P.N. Articulation Pattern Committee

DATE: October 22, 1975

SUBJECT: REVISED ASSIGNMENTS FOR WORKSHOP

Date, Time and Location: Saturday, November 1, 1975
9:00 A.M. - 2:00 P.M.
(Brown Bag)
Board Room, Administration Building

Important: In order for the successful completion of our overwhelming task, WE NEED YOU.

In addition to you and your brown bag, in your briefcase should be materials pertinent to your new assignment.

Curriculum Areas	Committee
Philosophy & Objectives Revision	* J. Abbott, K. Evans, M. T. Honus
Curriculum Review (Investigate and bring newest films, slides, booklets, periodicals, etc.)	M. Abel, J. Albert, * P. Basial, B. Burgwin
Clinical Experience Summary and 3 Examples of Master Rotations	* M. Capalbo, A. Donovan, J. Ferraro
Introduction, Overview of Courses	K. Gardini, A. Varriano
Advanced Standing Requirements	L. M. Kaib, M. R. O'Keefe, * L. S. Pears
Orientation to Medical/Surgical Nursing - Clinical Area	* D. M. Cattley, B. Hughey
Hours - General Format	* L. Allayaud, F. Toman, K. Nagg

PITTSBURGH PUBLIC SCHOOLS
DEPARTMENT OF SECONDARY SCHOOLS
DIVISION OF OVT EDUCATION/CONNELLEY SKILL-LEARNING CENTER

Practical Nurse Curriculum Revision
In-Service Workshop
Wednesday, November 19, 1975

AGENDA

Advanced Standing Requirements (Include "Spin-ins and Spin-outs")	L. Pears, L. Kaib, R. O'Keefe
Clinical Experience and Area Overviews	M. Capalbo, A. Donovan, J. Ferraro, F. Dreibelbis
Level Objectives First Level (Fundamentals)	K. Evans, W. Major, B. Burgwin, M. Abel
Second Level (Human Health Care I and II)	A. Varriano, B. Hughey, J. Albert, D. M. Cattley
Third Level (Human Health Care III and IV)	M. T. Honus, P. Basial, K. Gardini
Rationale for Curriculum Change	J. E. Abbott
General Format	L. Allayaud, F. Toman, K. Nagg

PITTSBURGH PUBLIC SCHOOLS
DEPARTMENT OF SECONDARY SCHOOLS
DIVISION OF OVT EDUCATION
CONNELLEY SKILL-LEARNING CENTER

Practical Nursing Curriculum Implementation Planning
In-Service Workshop
Saturday June 5 and June 12, 1976
Location: Connelley, Room 408 Time: 8:00 a.m. - 2:00 p.m.

AGENDA

Development of a Comprehensive Examination for Level I Fundamentals of Human Health Care (1st Level Entry Applicants)	Kathyrn Evans, Myra Abel, Anita Donovan, Joan Ferraro, Wanda Major, Anne Varriano, Linda Kaib
Development of a Comprehensive Examination for Level II Human Health Care I (2nd Level Entry Applicants)	Margaret Honus, Jane Abbott, Margaret Basial, Margaret Capalbo, Catherine Gardini, Ruth O'Keefe
Determination of Selected Nursing Skills to be demonstrated by 1st and 2nd Level Entry Applicants (Development of forms to be utilized)	Frances Toman, Laura Pears, Elizabeth Burgwin, Dale Cattley, Florence Dreibelbis, Elizabeth Hughey
Development of an Implementation Schedule, Spin-in and Spin-out Procedures (1st and 2nd levels), and level certificates	Louise Allayaud, Nora Douglas, Faye Nastico, Kristin Nagg

Please review the curriculum area of your specific assignment and have available any materials which will be helpful to you. Your cooperation is greatly appreciated.

PITTSBURGH PUBLIC SCHOOLS
DEPARTMENT OF SECONDARY SCHOOLS/CONNELLEY SKILL-LEARNING CENTER
PRACTICAL NURSE PROGRAM COURSE OUTLINE

	Hrs.
LEVEL I	480 hrs.
FUNDAMENTALS OF HEALTH CARE	
BASIC SCIENCES	
I. THE FIRST STEP	30 hrs.

A. GENERAL ORIENTATION
1. Handbook
   a. Regulations
   b. Policies
   c. Requirements
2. Courses Offered
3. Administration and Faculty
   a. Introductions
   b. Lines of Authority
4. Student Funding
5. Tour of School
6. Safety Aspects

B. INTRODUCTION TO THE LEARNING PROCESS
1. Definition
2. Responsibilities of Student in the Learning Process
   a. Accepting
   b. Problem Solving
   c. Class Participation
   d. Classroom Behavior
3. Studying
   a. Requirements for Effective Study
      (1) Environment
      (2) Organization of Time
      (3) Self-discipline
   b. SQ3R Technique
   c. Use of Reference Materials
      (1) Textbooks
      (2) Periodicals
4. Pre-test for Math Review

C. PROFESSIONAL APPEARANCE
1. Classroom
2. Hospital
   a. Uniform Standards
   b. Shoes and Hose
   c. Hair and Cap
   d. Make-up
   e. Hygiene

Hrs.

D. HEALTH CARE DELIVERY SYSTEM
1. Hospital Departments
2. Extended Care Facilities
3. Health Maintenance Organizations
4. Home Health Services

E. STUDENT ROLE AND RESPONSIBILITIES ON THE HEALTH TEAM
1. Hospital Relationship and Attitudes
   a. Integrity
   b. Answering Phone
   c. The Health Team
      (1) Members
      (2) Relationships
   d. Lines of Authority with Team Nursing
2. Legal and Ethical Aspects
   a. Confidentiality
   b. Introduction to Legal Aspects of Health Care
      (1) Code of Ethics
      (2) Negligence and Malpractice related to Basic Health Care
      (3) Malpractice Insurance
      (4) Witnessing Consent Forms
      (5) Permission for Observation

F. INTRODUCTION TO THE NURSE-PATIENT RELATIONSHIP
1. Cultural Differences
   a. Family
   b. Community
2. Common Courtesies in Patient Relationships
   a. Introductions
   b. Addressing Patients
   c. Knocking on Closed Doors
   d. Explanation of Procedures
   e. Listening to the Patient

Hrs.

II. THE HEALTHY INDIVIDUAL — 126 hrs.

A. THE BASIC NEEDS OF ALL INDIVIDUALS
1. Physical Needs
   a. Food and Water
   b. Oxygen
   c. Rest and Sleep
   d. Shelter and Body Care
   e. Elimination
2. Emotional Needs
   a. Mental Health
      (1) Self-approval
      (2) Acceptance
   b. Personality
      (1) Traits
      (2) Defense Mechanisms
      (3) Habits
      (4) Handling Stress
3. Social Needs - Group Membership
   a. Family
      (1) Development
      (2) Cycle
      (3) Trends
   b. Peer Group
      (1) Definition
      (2) Methods of Communication
         (a) With fellow students
         (b) With co-workers
   c. Health Community - Introduction to Bacteriology
      (1) Protection
         (a) Differentiating between pathogenic and nonpathogenic
         (b) Preventing disease spread
      (2) Community Health Problems
         (a) Pollutants
         (b) Communicable disease
      (3) Food Safety
         (a) Organizations that protect food supply
         (b) Sanitary principles of storage and preparation of food
      (4) Government Agencies
4. Spiritual Needs
   a. Personal Philosophies
   b. Organized Religions

Hrs.

B. INTRODUCTION TO THE ORGANIZATION OF THE HUMAN BODY
1. The General Plan of the Body
   a. Body Cavities or Divisions
   b. Body Directions and Planes
   c. Basic Cell Structure and Functions
   d. Tissues
   e. Membranes
   f. Organs
   g. Systems - Gross Structure and Functions
      (1) Skin
      (2) Musculo-Skeletal
      (3) Digestive - Food Digestion
      (4) Circulatory
      (5) Respiratory
      (6) Nervous
      (7) Endocrine
      (8) Reproductive
      (9) Urinary

C. MAINTAINING A HEALTHY BODY
1. Posture - Body Mechanics
   a. Standing
   b. Sitting
   c. Walking
   d. Exercising
2. Foot Health
   a. Arch Trouble
   b. Proper Shoes
   c. Foot Care
3. Eating for Good Health
   a. Normal Nutrition
      (1) Relationship of Good Nutrition
         (a) Definition of good nutrition
         (b) Signs of poor nutrition
         (c) Basic four group
         (d) Recommended daily allowance
         (e) Sources and functions of six basic nutrients
         (f) Deficiency condition and how corrected
         (g) Use of Calorie Tables
         (h) Psychological importance of food

Hrs.

(2) Meal Planning
b. Principles of Planning and Buying Food
(1) Menu Planning
(2) Evaluating Menus for Nutrient Content
(3) Values in Planning and Buying Food
(4) Factors that Affect Food Choice
(5) Difficulties in Changing Food Habits
(6) Household Measurements
c. Principles of Storing and Cooking Food
(1) Methods of Storage
(2) General Principles of Cooking Food
(3) Preparation of Simple Nutritious Food

4. Dental Health
a. Tooth Decay
b. Effects of Food
c. Toothbrushing
d. Fluoridation
e. Choosing a Dentrifice
f. Simple Dental Disorders
(1) Caries
(2) Peridontal Disease

5. Personal Hygiene
a. Care of the Skin
b. Care of the Hair
c. Elimination
d. Menstrual Hygiene

6. Eye Care
a. Proper Light
b. Prevention of Eye Strain
c. Preventing Eye Injuries
d. Removal of Foreign Bodies

7. Addiction - Habits
a. Drugs
b. Alcohol
c. Tobacco
d. Coffee, Tea

8. Diversion and Recreation
a. Relief of Nervous and Physical Tension
b. Relief of Mental Fatigue

Hrs.

9. Simple First Aid Measures
a. Accident Prevention
b. Simple Wounds (cuts, abrasions)
c. Fainting
d. Bleeding
(1) Locating Pressure Points
(2) Application of Pressure to Pressure Points
e. Shock
(1) Positioning
(2) Warmth
f. Fractures
(1) Symptoms
(2) Immobilization
(3) Application of Sling
g. Burns
(1) Recognizing Levels of Severity
(2) Immediate First Aid
h. Poisoning
(1) Emergency Treatment
(2) Chart

10. Periodic Physical Examination

III. THE NATURAL PHENOMENON OF ADVANCING AGE — 15 hrs.

A. INTRODUCTION TO AGING
1. Terminology
a. Aging
b. Senescence
c. Senility
d. Geriatrics
e. Gerontology
2. Lifespan

B. INDIVIDUAL CHANGES
1. Physical
2. Mental
3. Emotional

C. FAMILY RELATIONSHIPS
1. Role Changes
2. Family Acceptance
3. Family Substitute

Hrs.

D. SPECIAL GERIATRIC NEEDS
1. General Hygiene
2. Nutrition for the Aged
a. Food Problems
b. Diets
c. Meal Patterns
3. Safety
4. Housing Facilities
5. Division and Rehabilitation
a. Social
b. Physical
c. Economic

E. COMMUNITY RESOURCES
1. Community Responsibilities
2. Nursing Homes
a. Selection
b. Legal Aspects
(1) Social
(2) Governmental Control
c. Types of Care

F. ATTITUDES TOWARD DEATH
1. Emotional Aspects
2. Adjustment

IV. INTRODUCTION TO THE PROCESSES OF DISEASE — 30 hrs.

A. NORMAL BODY DEFENSES
1. Skin and Mucous Membrane
2. Lymphocytes
3. Leukocytes
4. Natural Body Secretions
5. Immunity
a. Types
(1) Inherited
(2) Acquired
(a) Active
(b) Passive
b. Antigen - Antibody Reaction

B. CLASSIFICATION AND ETIOLOGY
1. Hereditary
2. Congenital
3. Deficiencies
4. Infectious
5. Metabolic
6. Neoplastic
7. Traumatic
8. Occupational

Hrs.

C. PREDISPOSING FACTORS
1. Genetic
2. Dietary Deficiencies
3. Ignorance
4. Emotional Problems
5. Inadequate Production

D. COURSE OF DISEASE
1. Acute
2. Subacute
3. Chronic

E. INFLAMMATION
1. Definition
2. Symptoms
3. Related Causes of Symptoms

F. REGENERATION OF BODY TISSUE
1. First Intentions
2. Second Intentions
3. Granulation
4. Scar Tissue

G. COMMON SIGNS AND SYMPTOMS
1. Classification of Observation
a. Objective
b. Subjective
2. Observations
a. Cough
b. Dyspnea
c. Cyanosis
d. Jaundice
e. Edema
f. Emesis
g. Hemmorrhage
h. Diarrhea
i. Fever
j. Fatigue
k. Anorexia
l. Changes in Vital Signs
m. Inflammation and Infection
n. Pain
(1) Location
(2) Description
o. Emotional and Mental Reactions
(1) Orientation
(2) Responsiveness
3. Nursing Measures to Help Alleviate the Symptoms

Hrs.

H. BASIC DIAGNOSTIC PROCEDURES
1. Urinalysis
2. CBC Differential
3. Electrocardiogram
4. Chest X-ray
5. G.I. Series

V. PRINCIPLES OF PHARMACOLOGY - INTRODUCTION — 30 hrs.

A. UNITS OF MEASUREMENT
1. Apothecaries'
2. Household (review)
3. Metric
a. Symbols
b. Equivalents
c. Conversion

B. DRUG STANDARDS
1. U.S.P.
2. N.F.
3. New and Non-official Remedies
4. Enforcement of Standards

C. LEGAL ASPECTS OF MEDICATION
1. Federal Controls
a. Harrison Narcotic Act
b. Controlled Drug Act of 1971
c. F.D.A.
2. Individual Responsibilities
a. Physician
b. Pharmacist
c. Nurse
d. Patient
(1) Hospital
(2) Home

D. SOURCES OF DRUGS
1. Plant
2. Animal
3. Synthetic

E. DRUG PREPARATIONS
1. Pill
2. Capsule
3. Tablet
4. Suppository
5. Ampule
6. Vial
7. Liquid
(1) Suspensions
(2) Emulsions
8. Powders
9. Aerosol

Hrs.

F. METHODS OF ADMINISTRATION
1. Local (Topical)
a. Skin
b. Mucous Membrane
2. Systemic
a. Oral
b. Sublingual
c. Parenteral
(1) IM
(2) Subcutaneous
(3) IV
(4) Intradermal
d. Rectal
e. Vaginal
f. Inhalation

G. DRUG DOSAGE
1. Range of Effectiveness
a. Minimum
b. Maximum
c. Toxic
d. Lethal
2. Factors that Affect Drug Dosage
a. Age
b. Sex
c. Weight
d. Patient's Condition
e. Disposition of Patient
f. Method Used
g. Distribution
h. Elimination

H. PURPOSES OF DRUGS
1. Preventive
2. Diagnostic
3. Therapeutic
4. Curative
5. Palliative or Symptomatic
6. Supportive
7. Substitutive
8. Restorative

I. ACTION OF DRUGS
1. According to Location
a. Local or Topical
b. Systemic
c. Selective
d. General
2. According to Expected Results
a. Stimulation
b. Depression
c. Irritation
d. Demulcent
e. Salt Action

Hrs.

3. According to Condition of Patient
   a. Physiologic
   b. Therapeutic
4. Terms to Describe Actions
   a. Side Effects
   b. Idiosyncratic Action
   c. Toxic Action
   d. Cumulative Action
   e. Antagonistic
   f. Synergistic

J. ABBREVIATIONS AND SYMBOLS

K. THE WRITTEN ORDER
1. Prescription
2. Patient's Chart
3. Kardex
4. Medicine Card

L. INDIVIDUAL DRUG DATA FOR ADMINISTRATION
1. Purpose
2. Indications
3. Usual Dosage
4. Method of Administration
5. Contradictions
6. Toxic Reactions

M. COMMON DRUG CLASSIFICATION WITH EXAMPLES
1. Stimulant - Dexadrine
2. Analgesic - Aspirin
3. Narcotic - Demerol
4. Sedative - Phenobarbital
5. Hypnotic - Seconal
6. Tranquilizer - Valium
7. Vasodilators - Nitroglycerin
8. Vasoconstrictors - Adrenalin
9. Cardiotonic - Digitalis
10. Antihistamine - Allerest
11. Expectorant - Benylin Expectorant
12. Bronchodilator - Tedral
13. Antacid - Maalox
14. Cathartic - Milk of Magnesia
15. Diuretic - Lasix
16. Hormone - Insulin
17. Antiseptic - Alcohol
18. Antibiotic - Penicillin

Hrs.

VI. HEALTH CARE SKILLS RELATED TO THE PATIENT'S BASIC NEEDS — 114 hrs.

A. GENERAL ENVIRONMENTAL NEEDS
1. Introduction to Medical Asepsis
2. Handwashing
3. Care of the Patient's Unit
   a. Cleanliness
   b. Safety

B. ADMISSION PROCEDURES
1. Application of Communication Skills
2. Height and Weight
3. T.P.R.
4. B.P.
5. Simple Physical Observations
6. Introduction to Medical Terminology
7. Elementary Charting of Observations
8. Introduction to Kardex
9. Reminder Sheets
10. Assignment Sheets

C. PHYSICAL NEEDS OF THE PATIENT
1. Types of Hospital Beds
   a. Electric
   b. Manual
   c. Circo-electric
   d. Stryker Frame
2. Bedmaking
   a. Closed Bed
   b. Open Bed
   c. Occupied Bed
   d. Modification for Special Needs
      (1) Anesthetic Bed
      (2) Orthopedic Bed
3. Proper Body Alignment
   a. Positioning
   b. Lifting
   c. Moving
      (1) Wheel Chair
      (2) Cart
4. Personal Hygiene
   a. Bath
      (1) Assisting
      (2) Partial
      (3) Complete

Hrs.

b. Back Care
   (1) General Back Rub
   (2) Special Back Care
c. Oral Hygiene
   (1) Assisting
   (2) Special
d. Care of the Hair
   (1) Daily Care
   (2) Shampoo
e. Shaving
f. Nail Care
g. Special Considerations
   (1) Catheter Care - Patency
   (2) I.V.
   (3) Observations

5. Assisting with Bowel and Bladder Functions
   a. Observation of Stool and Urine
   b. Charting Observations and Output
   c. The Helpless Patient
      (1) Incontinence and Retention
      (2) Bowel and Bladder Training
   d. Use of the Fracture Pan
6. Assisting with Meals and Feeding
   a. Recognition of Individual Differences
   b. Care of the Environment for Meal Time
   c. Preparation of the Patient
   d. Assisting with Meals
   e. Feeding a Helpless Patient
      (1) Strained food
      (2) Asepto syringe
      (3) Dropper
      (4) Cup
   f. Charting Fluid Intake

VII. HEALTH CARE SKILLS RELATED TO THE PATIENT'S SPECIAL NEEDS — 135 hrs.

A. ASSISTING WITH DIAGNOSTIC PROCEDURES
1. Collection of Specimens
   a. Urine
      (1) Routine
         (a) Voided
         (b) Foley drainage

Hrs.

      (2) Clean catch
      (3) 24 Hour
   b. Stool
   c. Sputum
      (1) Wet
      (2) Dry
   d. Observations
   e. Reporting and Recording
2. Urine Reductions
   a. Methods
      (1) Clinitest
      (2) Tes-Tape
      (3) Acetest
      (4) Ketostix
      (5) Diastix
   b. Reporting for Insulin Coverage and Recording
3. Assisting with Physical Examinations
   a. Equipment
   b. Body Positions
      (1) Horizontal Recumbent
      (2) Dorsal Recumbent
      (3) Prone
      (4) Sims
      (5) Fowlers
      (6) Knee Chest
      (7) Dorsal Lithotomy
   c. Draping

B. BASIC TREATMENTS
1. Support Measures
   a. Binders
      (1) Scultetus
      (2) Straight
      (3) T-Binder
   b. Ace Bandages
   c. Elastic Hose
2. Applications of Heat and Cold
   a. Ice Cap
   b. Hot Water Bottle
   c. Sitz Bath
   d. Unsterile Moist Compresses
   e. Heat Lamp
3. Enemas - Flatus Tube
   a. Types
      (1) Cleansing
         (a) Tap water
         (b) Soapsuds
         (c) Fleets
      (2) Retention
   b. Procedure
   c. Observations and Charting
   d. Care of Equipment

Hrs.

C. ADVANCED PROCEDURES
1. Problem Oriented Charting (SOAPIE)
   a. Introduction to Nursing Care Plan
   b. Progress Notes - SOAPIE
2. Post Mortem Care
   a. Signs of Impending Death
   b. Spiritual Needs of Dying Patient
   c. Family Support
   d. Post Mortem Care Procedure
3. The Surgical Patient
   a. Pre-Op Care
      (1) Physical preparation
      (2) Emotional preparation
   b. Post-Op Care
      (1) Observations
         (a) Complications
         (b) Patency of drainage tubes
         (c) Dressings
      (2) Positioning
4. Protective Care
   a. Purposes
   b. Preparation of Unit
   c. Applying and Removing Mask and Gown
   d. Transfer of Food and Expendibles
   e. Care of Linen
   f. Handling of Non-expendibles
   g. Collecting Specimens
   h. Transporting
   i. Terminal Cleansing
5. Introduction to Surgical Asepsis
   a. General Principles
   b. Methods of Sterilization
   c. Handling Sterile Equipment
      (1) Opening sterile package
      (2) Applying sterile gloves
   d. Changing Simple Sterile Dressings
6. Range of Motion Exercise
   a. Active
   b. Passive
7. Use of Safety Devices
   a. Restraints
   b. Posey Equipment

Hrs.

8. Meeting the Needs of the Long-term Patient
   a. Hygiene
   b. Nutrition
   c. Positioning
   d. Rehabilitation
9. Meeting the Physical Needs in Home Environment
   a. Improvising with Home Facilities
   b. Safety Aspects
   c. Community Resources
      (1) Meals on Wheels
      (2) V.N.A.
      (3) Public Health
   d. Independence
10. Preparing and Administering Medication
   a. The Five (5) Rights of Administering Medication
      (1) Right Patient
      (2) Right Medicine
      (3) Right Dose
      (4) Right Time
      (5) Right Method
   b. Oral Medications
      (1) Liquid
      (2) Pill, capsule, tablet
      (3) Powders
      (4) Special considerations
         (a) Cough medications
         (b) Unpleasant tasting medications
         (c) Acid or iron preparations
   c. Parenteral Medication
      (1) Syringe and needle
         (a) Types
         (b) Sizes
         (c) Handling a sterile syringe
      (2) Subcutaneous
         (a) Purposes
         (b) Areas for injection
      (3) Intramuscular
         (a) Purposes
         (b) Areas for injection
      (4) Insulin
      (5) Skin preparation
      (6) Safety factors

Hrs.

LEVEL II — 630 hrs.
HUMAN HEALTH CARE I

A. INTRODUCTION TO BASIC CONCEPTS OF HUMAN HEALTH CARE — 9 hrs.
1. Identification of policies
   a. School
   b. Clinical facility
   c. Nursing service department
2. Organization of clinical facility
   a. Functions
   b. Lines of authority
   c. Personnel
   d. Specific departments
3. Role of the student practical nurse
   a. Learning experiences
   b. Nursing team member
4. Tour of physical facility

B. NURSING THE PATIENT WITH PROBLEMS OF LOCOMOTION I — 50 hrs.
1. Anatomy and physiology
2. Common deviations
   a. Traumatic injuries
   b. Inflammatory conditions
3. Preventive measures
4. Medical and surgical management
5. Nursing implications
   a. Diagnostic procedures
   b. Diet therapy
   c. Drug therapy
   d. Psychosocial aspects
   e. Nursing care and related skills
   f. Community resources
6. Rehabilitative therapy
7. Clinical experience

C. NURSING THE PATIENT WITH CARDIOVASCULAR IMPAIRMENT I — 70 hrs.
1. Anatomy and physiology
2. Common deviations
   a. Arterial degeneration
   b. Blood dyscrasias
   c. Varicosities
3. Preventive measures

Hrs.

4. Therapeutic management
   a. Common symptoms
   b. Laboratory tests
   c. Diagnostic procedures
5. Nursing responsibilities
   a. Diet therapy
   b. Drug administration
   c. Psychosocial support
   d. Related nursing care and skills
   e. Community resources
6. Rehabilitation therapy
7. Clinical experience

D. NURSING CONCEPTS IN THE CARE OF RESPIRATORY EMBARRASSMENT I — 50 hrs.
1. Anatomy and physiology
2. Common conditions
   a. Colds
   b. Bronchitis
   c. Pneumonia
   d. Tuberculosis
3. Preventive measures
4. Therapeutic management
   a. Common symptoms
   b. Laboratory tests
   d. Diagnostic procedures
5. Nursing implications
   a. Drug therapy
   b. Emotional support
   c. Nutritional needs
   d. Nursing care and related skills
   e. Socio-economic aspects
6. Rehabilitative therapy
7. Community resources
8. Clinical experience

E. BASIC CONCEPTS OF NURSING APPLIED TO PATIENTS WITH NEUROLOGICAL SYMPTOMS I — 50 hrs.
1. Anatomy and physiology
2. Common conditions
   a. Cerebrovascular accident
   b. Epilepsy
3. Preventive measures
4. Medical management
   a. Common symptoms
   b. Diagnostic tests
5. Principles of nursing care
   a. Patient with seizures
   b. Unconscious patient

Hrs.

6. Nursing responsibilities
   a. Diet adaptations
   b. Drug therapy
   c. Psychosocial support
7. Rehabilitative factors
8. Community resources
9. Clinical experience

F. THE IMPACT OF AUDIO-VISUAL IMPAIRMENT ON THE INDIVIDUAL I — 28 hrs.
1. Anatomy and physiology
2. Preventive emphasis
3. Common conditions of the eye and ear
   a. Inflammatory disorders
   b. Injuries
4. Therapeutic assessment
   a. Common symptoms
   b. Diagnostic tests
5. Nursing implications
   a. Medication administration
   b. Psychosocial support

G. CONCEPTS BASIC TO THE CARE OF PATIENTS WITH COMMON GASTROINTESTINAL DISTURBANCES I — 50 hrs.
1. Anatomy and physiology
2. Common deviations
   a. Appendicitis
   b. Gastroenteritis
   c. Hemorrhoids
   d. Hernias
3. Preventive aspects
4. Medical-surgical intervention
5. Common symptoms
6. Laboratory tests
7. Diagnostic procedures
8. Nursing responsibilities
9. Diet modifications
10. Drug therapy
11. Nursing care and related skills
12. Psychosocial support
13. Community resources
14. Clinical experience

H. NURSING THE PATIENT WITH GENITO-URINARY DYSFUNCTION I — 69 hrs.
1. Anatomy and physiology
2. Common disorders
   a. Renal calculi
   b. Urinary tract infections
   c. Hysterectomy

Hrs.

3. Preventive factors
4. Therapeutic management
   a. Etiology
   b. Common symptoms
   c. Laboratory tests
   d. Diagnostic procedures
5. Nursing measures
   a. Drug therapy
   b. Nutritional adaptations
   c. Psychosocial support
   d. Special nursing procedures
      (1) Catherization
      (2) Catheter irrigation
      (3) Urine strainer
      (4) Vaginal irrigation
   e. Patient education
6. Community resources
7. Clinical experience

I. NURSING THE PATIENT WITH METABOLIC IMBALANCES I — 28 hrs.
1. Anatomy and physiology
2. Common dysfunctions
   a. Hyperfunction
   b. Hypofunction
   c. Diabetes mellitus
3. Therapeutic management
   a. Predisposing factors
   b. Common symptoms
   c. Laboratory tests
   d. Diagnostic procedures
4. Nursing responsibilities
   a. Diet adaptations
   b. Emotional support
   c. Medication therapy
   d. Socio-economic aspects
   e. Nursing care and related skills
   f. Approaches to special problems
5. Patient education
6. Community resources

J. NURSING THE PATIENT WITH ALLERGIC REACTIONS I — 10 hrs.
1. Anatomy and physiology
2. Related medical terminology
3. Therapeutic management
   a. Common symptoms
   b. Diagnostic tests
   c. Treatments

Hrs.

4. Nursing responsibilities
   a. Diet modifications
   b. Drug therapy
   c. Psychosocial support
   d. Specific nursing care
   e. Special considerations
      (1) Individual needs
      (2) Anaphylactic shock
      (3) Emergency measures
5. Patient education
6. Community resources

K. MATERNITY-CHILD HEALTH NURSING — 210 hrs.

Obstetrics — 105 hrs.

1. Introduction
   a. Definition and philosophy
   b. Promotion and preventive measures
   c. Community resources
   d. Role of the practical nurse
2. Preparation for parenthood
   a. Anatomy and physiology of the reproductive organs
   b. Expectant mother changes
      (1) Physical
      (2) Psychological
   c. Components of prenatal care
   d. Community resources
3. Labor experience for the expectant family
   a. Stages and mechanisms of labor
   b. Anesthesia and analgesia
      (1) Types
      (2) Advantages
      (3) Disadvantages
   c. Mother progress
      (1) Physical
      (2) Psychological
      (3) Supportive person needs
   d. Nursing care and related skills
4. Care of new mothers and babies
   a. Baby care
      (1) Birth adjustment
      (2) Nursing measures
      (3) Characteristics
      (4) Physical and psychological support

Hrs.

   b. Mother care
      (1) Physical changes
      (2) Psychological aspects
      (3) Nursing measures
   c. New family education
5. Special needs of the family
   a. Needs and concerns
      (1) Unwed parents
      (2) Teenage parents
      (3) Unwanted baby
   b. Antepartum period
      (1) Major complications
      (2) Preventive measures
   c. Labor period
      (1) Forced delivery
      (2) Caesarean section
      (3) Preventive measures
   d. Postpartum period
      (1) Hemorrhage
      (2) Infection
      (3) Preventive measures
   e. Newborn complications
      (1) Congenital malformations
      (2) Prematurity

Pediatrics — 105 hrs.

6. Introduction to growth and development
   a. Terminology
   b. Internal and external factors
   c. Stages and characteristics
      (1) Physical
      (2) Psychological
7. Normal growth and development
   a. Infancy
   b. Toddlerhood
   c. Pre-school age
   d. School age
   e. Puberty
   f. Adolescent
      (1) Physical
      (2) Psychosocial
8. Nutritional requirements during each age
9. Common conditions
   a. Common cold
   b. Diarrhea
   c. Cleft palate
   d. Accidents
   e. Spasmodic laryngitis
   f. Mental retardation
   g. Tonsillectomy
   h. Rheumatic fever
   i. Obesity
   j. Veneral disease
   k. Alcoholism

Hrs.

10. Special aspects of pediatric nursing
    a. Minor illnesses
    b. Complex illnesses
        (1) Short-term
        (2) Long-term
11. Parent and patient education
12. Community resources
13. Clinical experience

LEVEL III
HUMAN HEALTH CARE II 490 hrs.

A. NURSING THE PATIENT WITH PROBLEMS OF LOCOMOTION II 35 hrs.
1. Musculoskeletal impairment
    a. Arthroplasty
    b. Amputation
2. Therapeutic management
    a. Etiology
    b. Diagnostic techniques
    c. Course of treatment
    d. Complications
3. Nursing measures
    a. Diet therapy
    b. Drug administration
    c. Emotional support
    d. Specific needs
4. Rehabilitation patterns
5. Community resources
6. Clinical experience

B. NURSING THE PATIENT WITH CARDIOVASCULAR DISORDERS II 35 hrs.
1. Coronary conditions
    a. Coronary artery disorders
        (1) Angina
        (2) Myocardial infarction
        (3) Congestive heart failure
    b. Infectious heart conditions
    c. Heart surgery
2. Medical and surgical assessment
    a. Etiology
    b. Symptoms
    c. Therapeutic management
    d. Diet and drug therapy
    e. Socio-economic aspects
    f. Emotional support

Hrs.

3. Cardiac emergency care
4. Appropriate nursing measures
5. Rehabilitation patterns
6. Community resources
7. Clinical experience

C. NURSING CONCEPTS IN THE CARE OF PATIENTS WITH RESPIRATORY EMBARRASSMENT II 35 hrs
1. Advanced respiratory conditions
    a. Chronic obstructive lung disease
    b. Cancer of the lung
    c. Tracheostomy
2. Therapeutic management
    a. Etiology
    b. Diagnostic procedures
    c. Medical management
        (1) Oxygen therapy
        (2) Physiotherapy
    d. Surgical intervention
        (1) Procedures
        (2) Treatments
3. Nursing responsibilities
    a. Environmental control
    b. Management of secretions
    c. Medication administration
    d. Nutritional needs
    e. I.P.P.B. and physiotherapy
    f. Psychosocial support
    g. Patient education
    h. Specific nursing skills
        (1) Observations
        (2) Suctioning
        (3) Tracheostomy care
        (4) Chest tube drainage
        (5) Ventilation equipment
    i. Emergency measures
        (1) Respiratory insufficiency
        (2) Respiratory failure
4. Community resources
5. Rehabilitative aspects
6. Clinical experience

D. BASIC CONCEPTS APPLIED TO PATIENTS WITH NEUROLOGICAL CONDITIONS II 32 hr
1. Advanced conditions
    a. Spinal cord and brain injuries

Hrs.

b. Neurosurgery
   (1) Head injury
   (2) Herniated lumbar disk
2. Anatomy and physiology reinforcement
3. Head injury management
   a. Emergency care
   b. Hospital care
4. Nursing considerations
   a. Observations
   b. Physical and emotional rest
   c. Dehydration and output
   d. Diet management
   e. Drug administration
5. Surgical intervention
   a. Causes and symptoms
   b. Diagnostic procedures
   c. Preventive measures
   d. Principles of nursing care
      (1) Preoperative
      (2) Postoperative
      (3) Special skills
   e. Communications
6. Rehabilitative patterns
7. Community resources
8. Clinical experience

E. THE IMPACT OF AUDIO-VISUAL IMPAIRMENT IN THE INDIVIDUAL II — 25 hrs.
1. Advanced conditions
   a. Degenerative disorders
      (1) Cataracts
      (2) Detached retina
      (3) Glaucoma
      (4) Meniere's syndrome
      (5) Otosclerosis
   b. Partially sighted and blindness
   c. Hearing loss and deafness
2. Medical and surgical management
   a. Course and symptoms
   b. Diagnostic tests
   c. Conservative treatment
   d. Surgical procedures
3. Nursing considerations
   a. General nursing needs
      (1) Dietary management
      (2) Drug administration
      (3) Emotional support
      (4) Nursing care

Hrs.

   b. Special nursing needs
      (1) Preoperative care
      (2) Postoperative
      (3) Activities of daily living
4. Community resources
5. Rehabilitation patterns
6. Clinical experience

F. CONCEPTS BASIC TO THE CARE OF PATIENTS WITH GASTRO-INTESTINAL DISTURBANCES II — 35 hrs.
1. Advanced conditions
   a. Oral surgery
   b. Cancer
   c. Peptic ulcers
   d. Peritonitis
   e. Ulcerative colitis
   f. Cholecystitis
   g. Cirrhosis
   h. Hepatitis
   i. Pancreatitis
2. Medical and surgical management
   a. Etiology
   b. Diagnostic procedures
   c. Medical treatment
   d. Surgical procedures
   e. Preventive measures
3. Nursing care responsibilities
   a. Drug therapy
   b. Diet management
   c. Emotional support
   d. Physical care
4. Special considerations
   a. Nasogastric intubation
   b. Gastric gavage
   c. Gastric lavage
   d. Colostomy irrigation
   e. Ostomy care
5. Patient education
6. Rehabilitation patterns
7. Community resources
8. Clinical experience

G. NURSING THE PATIENT WITH GENITO-URINARY DYSFUNCTION II — 35 hrs.
1. Advanced conditions
   a. Glomerulonephritis
   b. Renal failure
      (1) Dialysis
      (2) Transplant
   c. Mastectomy
   d. Prostate conditions
      (1) Hypertrophy
      (2) Cancer

Hrs.

2. Medical and surgical management
   a. Causes and symptoms
   b. Diagnostic procedures
   c. Non-surgical treatment
   d. Surgical intervention
   e. Preventive measures
3. Nursing considerations
   a. Chemotherapy
   b. Nutritional needs
   c. Physical care
   d. Psychosocial aspects
   e. Special nursing procedures
4. Convalescent care
5. Community resources
6. Patient education
7. Clinical experience

H. NURSING THE PATIENT WITH METABOLIC INBALANCES II — 30 hrs.
1. Thyroid dysfunction
   a. Causes and symptoms
   b. Diagnostic procedures
   c. Medical management
   d. Surgical intervention
2. Nursing responsibilities
   a. Diet modifications
   b. Medication therapy
   c. Specific nursing care
      (1) Preoperative
      (2) Postoperative
   d. Psychosocial aspects
3. Rehabilitative patterns
4. Patient teaching
   a. Discharge instructions
   b. Home care
5. Community resources
6. Clinical experience

I. NURSING THE PATIENT WITH PROBLEMS INVOLVING DISFIGUREMENT — 18 hrs.
1. Advanced conditions
   a. Skin disorders
   b. Burns
2. Dermatology terminology
   a. Conditions
   b. Examples
3. General skin care
   a. Bathing
   b. Special baths
   c. Specific treatments

Hrs.

4. Drug therapy
   a. Topical medications
   b. Corticosteroids
   c. Systemic medications
5. Psychosocial aspects
6. Classification of burns
   a. Depth
   b. Percentage
7. Nursing responsibilities
   a. Emergency care
      (1) General first aid
      (2) Hospitalization
      (3) Burn centers
   b. Immediate care
      (1) Breathing
      (2) Fluid therapy
      (3) Renal function
      (4) Care of burns
      (5) Medications
      (6) Nutritional needs
   c. Emotional support
8. Rehabilitative patterns
   a. Long-term care
   b. Emotional support
   c. Socio-economic factors
   d. Patient education
9. Community resources
10. Clinical experience

J. SPECIALIZED NURSING — 140 hrs.
1. Specialty areas
   a. Emergency room
   b. Intensive care
   c. Recovery room
   d. Psychiatric concepts
   e. Home care
   f. Additional medication administration
   g. Principles of leadership
2. Nursing responsibilities
   a. Surgical patient follow-through
   b. Nursing care plans
   c. Observations and assessment
   d. Emotional aspects
      (1) Patient
      (2) Family
   e. Complication preventive measures
   f. Medication administration

Hrs.

g. Adaptation of nursing techniques for home care
h. Mental health promotion
i. Nursing action priorities
j. Team leader role
3. Community resources
4. Clinical experience

K. NURSING OPPORTUNITIES 70 hrs.
1. Health care trends
2. Nursing trends
3. Ethical and legal responsibilities
4. Nursing organizations
   a. Alumni Association
   b. National League of Nursing
   c. National Association for Practical Nurse Education and Service
   d. National Federation of Licensed Practical Nursing
   e. American Nurses Association
      (1) Functions
      (2) Journals
5. Employment opportunities
   a. Sources and areas of employment
   b (1) Advantages
      (2) Disadvantages
   b. Fringe benefits
   c. Job applications
      (1) Letter
      (2) Résumé
   d. Job interview
   e. Resignation procedures
6. Personal and professional growth
   a. Promotion preparation
   b. Formal education continuation
   c. Health career ladders
7. N.L.N. test
8. Evaluation conference

PITTSBURGH PUBLIC SCHOOLS
DEPARTMENT OF SECONDARY EDUCATION
OCCUPATIONAL, VOCATIONAL, AND TECHNICAL DIVISION
HEALTH ASSISTANT PROGRAM
COURSE OUTLINE (540 hours)

	HOURS
HEALTH ASSISTANT I	270 hrs

I. INTRODUCTION TO HEALTH ASSISTING — 20 hrs

A. General Orientation
1. Introduction to health careers
2. Ladders and lattices
3. Employment possibilities
4. Introduction to VICA
5. Tour of physical facilities
6. Safety factors

B. Introduction to the Learning Process
1. Student responsibilities
2. Studying
   a. Requirements for effective study
   b. SQ3R technique
   c. Use of reference materials

C. Student Role and Responsibilities on the Health Team
1. Professional appearance
2. Hospital relationships and attitudes
   a. Integrity
   b. Telephone techniques
   c. The health team
   d. Lines of authority
3. Legal and ethical aspects
   a. Confidentiality
   b. Introduction to legal aspects of health care

HOURS

I. INTRODUCTION TO HEALTH ASSISTING (Continued)

C. 4. Health Care Delivery System
   a. Hospital departments
   b. Extended care facilities
   c. Health maintenance organizations
   d. Home health services

D. Introduction to Health Assistant-Patient Relationships
1. Cultural differences
   a. Family
   b. Community
2. Common courtesies in patient relationships
   a. Introductions
   b. Addressing patients
   c. Explanation procedures
   d. Listening to the patient

II. THE HEALTHY INDIVIDUAL — 76 hrs

A. The Basic Needs of All Individuals
1. Physical needs
   a. Food and water
   b. Oxygen
   c. Rest and sleep
   d. Shelter and body care
   e. Elimination

HOURS

II. THE HEALTHY INDIVIDUAL
(Continued)

A. 2. Emotional needs
- a. Mental health
  - (1) Self-approval
  - (2) Acceptance
- b. Personality
  - (1) Traits
  - (2) Defense mechanisms
  - (3) Habits
  - (4) Handling stress

3. Social needs - group membership
- a. Family
  - (1) Development
  - (2) Cycle
  - (3) Trends
- b. Peer group
  - (1) Definition
  - (2) Methods of communication
- c. Health community - Introduction to Bacteriology
  - (1) Protection
    - (a) Pathogenic and non-pathogenic organisms
    - (b) Preventing disease spread
  - (2) Community health problems
    - (a) Pollutants
    - (b) Communicable disease
  - (3) Food Safety
    - (a) Organizations that protect food supply
    - (b) Sanitary principles of food storage and preparation
  - (4) Government agencies

HOURS

II. THE HEALTHY INDIVIDUAL
(Continued)

A. 4. Spiritual Needs
- a. Personal philosophies
- b. Organized religions

B. Introduction to the Organization of the Human Body
1. The body as a whole
2. The General plan of the body
- a. Body cavities or divisions
- b. Body directions and planes
- c. Basic cell structure and functions
- d. Tissues
- e. Membranes
- f. Organs
- g. Systems - gross structure and functions
  - (1) Skin
  - (2) Musculo-skeletal
  - (3) Digestive
  - (4) Circulatory
  - (5) Respiratory
  - (6) Nervous
  - (7) Endocrine
  - (8) Reproductive
  - (9) Urinary

C. Maintaining a Healthy Body
1. Posture - body mechanics
- a. Standing
- b. Sitting
- c. Walking
- d. Exercising

2. Foot health
- a. Arch trouble
- b. Proper shoes
- c. Foot care

HOURS

II. THE HEALTHY INDIVIDUAL
(Continued)

C. 3. Eating for good health
- a. Normal nutrition
  - (1) Relationship of good nutrition
    - (a) Definition of good nutrition
    - (b) Signs of poor nutrition
    - (c) Basic four groups
    - (d) Recommended daily allowances
    - (e) Sources and functions of six basic nutrients
    - (f) Deficiency conditions and how corrected
    - (g) Use of calorie tables
    - (h) Psychological importance of food
  - (2) Meal planning
- b. Principles of planning and buying food
  - (1) Menu planning
  - (2) Evaluating menus for nutrient content
  - (3) Values in planning and buying food
  - (4) Factors that affect food choice
  - (5) Difficulties in changing food habits
  - (6) Household measurements
- c. Principles of storing and cooking food
  - (1) Methods of storage
  - (2) General principles of cooking food
  - (3) Preparation of simple nutritious food

HOURS

II. THE HEALTHY INDIVIDUAL
(continued)

C. 4. Dental health
- a. Tooth decay
- b. Effects of food
- c. Toothbrushing
- d. Fluoridation
- e. Choosing a dentrifice
- f. Simple dental disorders

5. Personal hygiene
- a. Care of the skin
- b. Care of the hair
- c. Elimination
- d. Menstrual hygiene

6. Eye care
- a. Proper light
- b. Prevention of eyestrain
- c. Preventing eye injuries
- d. Removal of foreign bodies

7. Addictions - habits
- a. Drugs
- b. Alcohol
- c. Tobacco
- d. Coffee, tea

8. Diversion and recreation
- a. Relief of nervous and physical tension
- b. Relief of mental fatigue

9. Simple first aid measures
- a. Accident prevention
- b. Simple wounds
- c. Fainting
- d. Bleeding
- e. Shock
- f. Fractures
- g. Burns
- h. Poisoning

10. Periodic physical examination

HOURS

III. INTRODUCTION TO PROCESSES OF DISEASE — 30 hrs

A. Normal Body Defenses
   1. Skin and mucous membrane
   2. Lymphocytes
   3. Leukocytes
   4. Natural body secretions
   5. Immunity
      a. Types
      b. Antigen-antibody reaction

B. Classification and Etiology
   1. Hereditary
   2. Congenital
   3. Deficiencies
   4. Infectious
   5. Metabolic
   6. Neoplastic
   7. Traumatic
   8. Occupational

C. Predisposing Factors
   1. Genetic
   2. Dietary deficiencies
   3. Ignorance
   4. Emotional problems
   5. Inadequate production

D. Course of Disease
   1. Acute
   2. Subacute
   3. Chronic

E. Inflammation
   1. Definition
   2. Symptoms
   3. Related causes of symptoms

HOURS

III. INTRODUCTION TO PROCESSES OF DISEASE (Continued)

F. Regeneration of Body Tissue
   1. First intentions
   2. Second intentions
   3. Granulation
   4. Scar tissue

G. Common Signs and Symptoms
   1. Classifications of observation
      a. Objective
      b. Subjective
   2. Observations
      a. Cough
      b. Dyspnea
      c. Cyanosis
      d. Jaundice
      e. Edema
      f. Emesis
      g. Hemorrhage
      h. Diarrhea
      i. Fever
      j. Fatigue
      k. Anorexia
      l. Vital sign changes
      m. Inflammation and infection
      n. Pain
      o. Emotional and mental reactions
   3. Nursing measures to help alleviate symptoms

H. Basic Diagnostic Procedures
   1. Urinalysis
   2. CBC and differential
   3. Electrocardiogram
   4. Chest x-ray
   5. G.I. series

HOURS

IV. HEALTH CARE SKILLS I — 48 hrs

A. General Environmental Needs
   1. Introduction to medical asepsis
   2. Handwashing
   3. Care of the patient's unit
      a. Cleanliness
      b. Safety

B. Admission Procedures
   1. Application of communication skills
   2. Height and weight
   3. Temperature, pulse, respiration
   4. Blood pressure
   5. Simple physical procedures
   6. Introduction to medical terminology
   7. Elementary charting of observations
   8. Introduction to kardex
   9. Reminder sheets
   10. Assignment sheets

C. Physical Needs of the Patient
   1. Types of hospital beds
      a. Electric
      b. Manual
      c. Circo-electric
      d. Stryker frame
   2. Bedmaking
      a. Closed bed
      b. Open bed
      c. Occupied bed
      d. Modification for special needs
         (1) Anesthetic
         (2) Orthopedic

HOURS

IV. HEALTH CARE SKILLS I (Continued)

C. 3. Proper body alignment
      a. Positioning
      b. Lifting
      c. Moving
         (1) Wheelchair
         (2) Cart
   4. Personal hygiene
      a. Bath
         (1) Assisting
         (2) Partial
         (3) Complete
      b. Back care
         (1) General back rub
         (2) Special back care
      c. Oral hygiene
         (1) Assisting
         (2) Special
      d. Care of the hair
         (1) Daily care
         (2) Shampoo
      e. Shaving
      f. Nail care
      g. Special considerations
         (1) Catheter care - patency
         (2) I.V. solutions
         (3) Observations
   5. Assisting with bowel and bladder functions
      a. Observation of stool and urine
      b. Charting observations and output
      c. The helpless patient
         (1) Incontinence and retention
         (2) Bowel and bladder training
      d. Use of the fracture pan

HOURS

V. HEALTH CARE SKILLS I (Continued)

C. 6. Assisting with meals and feedings
- a. Recognition of individual differences
- b. Care of the environment for meal time
- c. Preparation of the patient
- d. Assisting with meals
- e. Feeding a helpless patient
  - (1) Strained food
  - (2) Asepto syringe
  - (3) Dropper
  - (4) Cup
- f. Charting fluid intake

VI CLINICAL EXPERIENCE — 96 hrs

HEALTH ASSISTANT II — 270 hrs

I. REVIEW OF CONTENT COVERED IN HEALTH ASSISTANT I — 15 hrs

A. Psycho-social Relationships
B. The Healthy Individual
C. Introduction to Processes of Disease
D. Health Care Skills I Practice

II. THE NATURAL PHENOMENON OF AGING — 30 hrs

A. Introduction of Aging
1. Terminology
- a. Aging
- b. Senescence
- c. Senility
- d. Geriatrics
- e. Gerontology

HOURS

II. THE NATURAL PHENOMENON OF AGING (Continued)

A. 2. Lifespan

B. Individual Changes
1. Physical
2. Mental
3. Emotional

C. Family Relationships
1. Role changes
2. Family acceptance
3. Family substitute

D. Special Geriatric Needs
1. General hygiene
2. Nutrition for the aged
- a. Food problems
- b. Diets
- c. Meal patterns

3. Safety
4. Housing facilities
5. Division and rehabilitation
- a. Social
- b. Physical
- c. Economic

E. Community Resources
1. Community responsibilities
2. Nursing homes
- a. Selections
- b. Legal aspects
  - (1) Social
  - (2) Governmental control
- c. Types of care

F. Attitudes Toward Death
1. Emotional aspects
2. Adjustment

	HOURS
III. HOME CARE	**15 hrs**
A. Extend and Effect of Chronic Illness	
B. Chronically Ill Patient and Family	
C. Cost of Disability	
D. Rehabilitation Special Services	
E. Facilities for Continuing Patient Care	
IV. INTRODUCTION TO PHARMACOLOGY	**30 hrs**
A. Units of Measurement	
1. Apothecaries	
2. Household (review)	
3. Metric	
a. Symbols	
b. Equivalents	
c. Conversion	
B. Drug Standards	
1. U.S.P.	
2. National Formulary	
3. New and Non-Official Remedies	
4. Enforcement of Standards	
C. Legal Aspects of Medication	
1. Federal Controls	
a. Harrison Narcotic Act	
b. Controlled Drug Act of 1971	
c. Food and Drug Administration	
2. Individual Responsibilities	
a. Physician	
b. Pharmacist	
c. Nurse	
d. Patient	
(1) Hospital	
(2) Home	

	HOURS
IV. INTRODUCTION TO PHARMACOLOGY (Continued)	
D. Source of Drugs	
1. Plant	
2. Animal	
3. Synthetic	
E. Drug Preparations	
1. Pill	
2. Capsule	
3. Tablet	
4. Suppository	
5. Ampule	
6. Vial	
7. Liquid	
a. Suspensions	
b. Emulsions	
8. Powders	
9. Aerosol	
F. Methods of Administration	
1. Local (topical)	
a. Skin	
b. Mucous membrane	
2. Systemic	
a. Oral	
b. Sublingual	
c. Parenteral	
(1) Intramuscular	
(2) Subcutaneous	
(3) Intervenous	
(4) Intradermal	
d. Rectal	
e. Vaginal	
f. Inhalation	
G. Drug Dosage	
1. Range of effectiveness	
a. Minimum	
b. Maximum	
c. Toxic	
d. Lethal	

HOURS

IV. INTRODUCTION TO PHARMACOLOGY (Continued)

G. 2. Factors that affect drug dosage
   a. Age
   b. Sex
   c. Weight
   d. Patient's condition
   e. Disposition of patient
   f. Method used
   g. Distribution
   h. Elimination

H. Purposes of Drugs
   1. Preventive
   2. Diagnostic
   3. Therapeutic
   4. Curative
   5. Palliative or Symptomatic
   6. Supportive
   7. Substitutive
   8. Restorative

I. Action of Drugs
   1. According to location
      a. Local or topical
      b. Systemic
      c. Selective
      d. General
   2. According to expected results
      a. Stimulation
      b. Depression
      c. Irritation
      d. Demulcent
      e. Salt action
   3. According to condition of patient
      a. Physiologic
      b. Therapeutic

HOURS

IV. INTRODUCTION TO PHARMACOLOGY (Continued)

I. 4. Terms to describe actions
   a. Side affects
   b. Idiosyncratic action
   c. Toxic action
   d. Cumulative action
   e. Antagonistic
   f. Synergistic

J. Abbreviations and Symbols

K. The Written Order
   1. Prescription
   2. Patient's chart
   3. Kardex
   4. Medicine card

L. Individual Drug Data for Administration
   1. Purpose
   2. Indications
   3. Usual dosage
   4. Method of administration
   5. Contradictions
   6. Toxic reactions

M. Common Drug Classification with Examples
   1. Stimulant - Dexadrine
   2. Analgesic - Aspirin
   3. Narcotic - Demerol
   4. Sedative - Phenobarbital
   5. Hypnotic - Seconal
   6. Tranquilizer - Valium
   7. Vasodilators - Nitroglycerin
   8. Vasoconstrictors - Adrenalin
   9. Cardiotonic - Digitalis
   10. Antihistamine - Allerest

HOURS

V. INTRODUCTION TO PHARMACOLOGY (Continued)

M. 11. Expectorant - Benylin
12. Bronchodilator - Tedral
13. Antacid - Maalox
14. Cathartic - Milk of Magnesia
15. Diuretic - Lasix
16. Hormone - Insulin
17. Antiseptic - Alcohol
18. Antibiotic - Penicillin

V. HEALTH CARE SKILLS II 60 hrs

A. Assisting with Diagnostic Procedures
1. Collection of specimens
a. Urine
(1) Routine
(a) Voided
(b) Foley drainage
(2) Clean catch
(3) 24 hour
b. Stool
c. Sputum
(1) Wet
(2) Dry
d. Observations
e. Reporting and recording
2. Urine reductions
a. Methods
(1) Clinitest
(2) Tes-tape
(3) Acetest
(4) Ketostix
(5) Diastix
b. Reporting for insulin coverage and recording
3. Assisting with physical examinations
a. Equipment

HOURS

V. HEALTH CARE SKILLS II (Continued)

A. 3. b. Body positions
(1) Horizontal recumbent
(2) Dorsal recumbent
(3) Prone
(4) Sims
(5) Fowlers
(6) Knee chest
(7) Dorsal lithotomy
c. Draping

B. Basic Treatments
1. Support measures
a. Binders
(1) Scultetus
(2) Straight
(3) T-binder
b. Ace bandages
c. Elastic hose
2. Application of heat and cold
a. Ice cap
b. Hot water bottle
c. Sitz bath
d. Unsterile moist compresses
e. Heat lamp
3. Enemas - flatus tube
a. Types
(1) Cleansing
(a) Tap water
(b) Soapsuds
(c) Fleets
(2) Retention
b. Procedure
c. Observations and Charting
d. Care of equipment

HOURS

V. HEALTH CARE SKILLS (Continued)

C. Advanced Procedures
1. Problem oriented charting (SOAPIE)
   a. Introduction to nursing care plan
   b. Progress notes - SOAPIE
2. Post mortem care
   a. Signs of impending death
   b. Spiritual needs of dying patient
   c. Family support
   d. Post mortem care procedure
3. The surgical patient
   a. Pre-operative care
      (1) Physical preparation
      (2) Emotional preparation
   b. Post-operative care
      (1) Observations
         (a) Complications
         (b) Patency of drainage tubes
         (c) Dressings
      (2) Positioning
4. Protective care
   a. Purposes
   b. Preparation of unit
   c. Applying and removing mask and gown
   d. Transfer of food and expendibles
   e. Care of linen
   f. Handling of non-expendibles
   g. Collecting specimens
   h. Transporting
   i. Terminal cleaning
5. Introduction to surgical asepsis
   a. General principles

HOURS

V. HEALTH CARE SKILLS (Continued)

C. 5. b. Sterilization methods
   c. Handling sterile equipment
      (1) Opening sterile packs
      (2) Applying sterile gloves
   d. Changing simple sterile dressings
6. Range of motion exercise
   a. Active
   b. Passive
7. Use of safety devices
   a. Restraints
   b. Posey equipment
8. Meeting the needs of the long term patient
   a. Hygiene
   b. Nutrition
   c. Positioning
   d. Rehabilitation
9. Meeting the physical needs in home environment
   a. Improvising with home facilities
   b. Safety aspects
   c. Community resources
      (1) Meals on wheels
      (2) V.N.A.
      (3) Public health
   d. Independence
10. Preparing and administering medication
   a. The five rights of administering medication
      (1) Right patient
      (2) Right medicine
      (3) Right dose
      (4) Right time
      (5) Right method

HOURS

V. HEALTH CARE SKILLS (Continued)

C. 10. b. Oral medications
- (1) Liquid
- (2) Pill, capsule, tablet
- (3) Powders
- (4) Special considerations
  - (a) Cough medications
  - (b) Unpleasant tasting medication
  - (c) Acid or iron preparations

c. Parenteral medications
- (1) Syringe and needles
  - (a) Types
  - (b) Sizes
  - (c) Handling a sterile syringe
- (2) Subcutaneous
  - (a) Purposes
  - (b) Areas for injection
- (3) Intramuscular
  - (a) Purposes
  - (b) Areas for injection
- (4) Insulin
- (5) Skin preparation
- (6) Safety factors

VI. CLINICAL EXPERIENCE 120 hrs

UE 004 591

VT 103 413

PROPOSED PLAN
FOR
CURRICULUM REVISION
OF THE
PITTSBURGH PUBLIC SCHOOLS
PRACTICAL NURSING PROGRAM

THE BOARD OF PUBLIC EDUCATION
PITTSBURGH, PENNSYLVANIA

CE 009 592

PROPOSED PLAN

FOR

CURRICULUM REVISION

OF THE

PITTSBURGH PUBLIC SCHOOLS

PRACTICAL NURSING PROGRAM

THE BOARD OF PUBLIC EDUCATION

PITTSBURGH, PENNSYLVANIA

49

PITTSBURGH PUBLIC SCHOOLS

PRACTICAL NURSING PROGRAM

Personnel

Practical Nursing Teachers

Jane E. Abbott
Myra Lee Abel
Margaret M. Basial
Elizabeth F. Burgwin
Margaret M. Capalbo
Dale M. Cattley
Anita M. Donovan
Florence K. Dreibelbis
Kathyrn T. Evans
Joan Ferraro
Catherine S. Gardini
Margaret T. Honus
Elizabeth J. Hughey
Wanda H. Major
M. Ruth O'Keefe
Laura S. Pears
Frances Toman
Anne P. Varriano

Health Assistant Teacher

Linda M. Kaib

Counselor, Practical Nursing Program

Faye Nastico

Coordinator, Practical Nursing Program

Louise Allayaud

Assistant Coordinator, Practical Nursing Program

Nora E. Douglas

Project Coordinator, Health Occupations

Kristin Nagg

Principal, Connelley Skill Learning Center

Anthony J. Bellini

Principal, Allegheny High School

Robert G. Harkins

Director, Occupational, Vocational and Technical Education

Robert G. Lamping

Assistant Superintendent, Secondary Schools

Helen S. Faison

CONTENTS

I. Rationale for Proposed Practical Nursing Curriculum Changes 1

II. Comparison of Present Program Curriculum with Proposed Revised Curriculum 3

A. Philosophy 3

B. Program and Level Objectives 7

C. Curriculum Hour Summary 10

D. Levels of Instruction 11

E. Course Overview 12

F. Course Descriptions 14

G. Health Assistant Program Adaptation to *Level I* of the Practical Nursing Program 19

1. Hour Summary 19

2. Unit Summary 20

H. Opportunity for Articulation and Advanced Standing 21

1. Articulation Standards for Health Assistant Applicants 21

2. First Level Entry Applicants 22

3. Second Level Entry Applicants 24

I. Master Rotation Plan for Practical Nursing Students 26

J. Information Available to Potential Practical Nursing Students 27

I. RATIONALE FOR PROPOSED CHANGES IN THE PRACTICAL NURSING PROGRAM

The faculty of the Pittsburgh Public Schools Practical Nursing Program, recognizing:

1. Trends in health care delivery toward health maintenance,
2. Trends in nursing toward professional mobility and flexibility,
3. Trends in education for continuing development of every individual throughout life,
4. Trends in career opportunities as affected by the state of our national economy; therefore, proposes a comprehensive curriculum change for the Practical Nursing Program. The faculty believes this change in curriculum design will integrate those progressive learning opportunities which follow the trends above and which offer greater relevance for our students.

The changes for the curriculum reflected a need to:

1. Develop a new theoretical framework to give direction to the construction of a comprehensive curriculum design.
2. Formulate program and level objectives to carry forward the program design.
3. Proceed from a traditional curriculum pattern to a developmental curriculum pattern facilitating both student and faculty growth.
4. Move from a curriculum framework which is subject oriented to one which integrates theory and practice.
5. Develop a curriculum pattern which avoids fragmented learning experiences and stresses correlation of learning and continuity of education.
6. Provide a way of meeting family and community health needs by emphasizing normal health maintenance.
7. Stress theoretical concepts rather than factual content.

8. Provide a meaningful basis for curriculum evaluation.

9. Develop a curriculum to afford educational opportunities for program articulation for the Health Assistant student, advanced standing placement for career mobility from other health occupations, and articulation with advanced nursing education programs.

10. Implement a program which offers educational reinforcement through vocational skill competencies at spin-out portals leading to employment.

11. Create a curriculum which offers the student greater ease through the learning process by affording more individualized progress and counseling.

II COMPARISON OF PRESENT PROGRAM CURRICULUM WITH PROPOSED REVISED CURRICULUM

A. PRESENT PHILOSOPHY

The faculty believes that:

Nursing is a multi-level profession which serves the comprehensive health needs of the public.

Nursing is viewed on a continuum, i.e., auxillary, Vocational/Practical Technical, profession which enables the individual to develop to the optimum of his/her potential while progressing according to his/her learning abilities.

This level of instruction affords a foundation to successive levels of nursing.

A. PROPOSED PHILOSOPHY

The faculty of the Pittsburgh Public Schools Practical Nursing Program postulates this theoretical construct for the program curriculum and asserts that:

Nursing is a health profession.

Health is viewed as the person's normal state of well being throughout human development.

The concept of human development is a life gestalt, i.e., prenatal life through death.

Fundamental to the integrity of the life cycle are developmental, family, and health needs.

The practice of nursing derives its impetus from these concepts of human needs and the family.

Nursing recognizes the right of every individual to an optimum health state in the process of human development.

The nursing profession is responsible for the promotion of normal health maintenance among individuals and for health state stabilization in physical and mental dysfunction.

The nursing profession is viewed as a whole, developed along an educational continuum with a multi-entry system for progressive competency positions, i.e., paraprofessional, vocational/practical, technical, and professional.

Each nursing locus of the continuum affords mobility to another locus, enabling an individual to develop full

A. PRESENT PHILOSOPHY-CONTINUED

Vocational/Practical Nursing is the level of this educational continuum which would prepare the individual to provide all general nursing care and to assist the health team in critical and complex care situations under the direction of the professional nurse and/or physician.

Education is a continuous process evidenced by expected behavioral changes in skills, knowledge, and attitudes.

Education effectively takes place in a climate which provides stimulation, enhances motivation, and develops the student to fullest potential.

We believe learning proceeds from the simple to the complex and from directed to more self-directed experiences.

A. PROPOSED PHILOSOPHY-CONTINUED

potential, while progressing according to his/her learning abilities is a continuing process for professional and personal development.

Vocational/practical nursing is the level of the nursing continuum which prepares the practitioner to promote the maintenance of an individual's normal health state and to assist in stabilization of the health state during physical and mental dysfunction.

The vocational/practical nurse functions as an integral member of the health team under the direction of a health professional in a variety of settings, such as hospitals, homes, and community agencies.

Education is a progressive process of self-growth throughout one's human development.

The student has a right to an educational opportunity which will enhance personal growth.

The faculty is the facilitator of the educational process, providing a learning climate which stimulates and motivates the student to fullest development.

Learning is characterized by expected behavioral changes in skills, knowledge, and attitudes. These behavioral changes are the competency/learning objectives required by the educational process of the curriculum.

Achievement of curriculum competencies through increasing self-direction by the student is under the guidance of the faculty.

A. PRESENT PHILOSOPHY-CONTINUED

This occurs in an atmosphere where individual worth is the foundation of purposeful activities and where a close correlation between classroom instruction and clinical experience is maintained.

It is the aim and responsibility of this faculty to provide an educational milieu for the student to acquire and apply knowledge and specialized skills essential to the practice of vocational nursing.

We believe the instructional program should assist the student:

1. To develop an attitude of self-discipline through personal responsibility toward the learning experiences.

2. To develop the capability of self-direction through personal confidence gained from the learning experiences.

3. To develop the faculty of good nursing judgment through personal diligence exercised in the learning experiences.

4. To develop a capacity for objectivity in regard to self, others, and to life situations through personal acceptance of

A. PROPOSED PHILOSOPHY-CONTINUED

Learning evolves from the fundamental level to the complex. It develops progressively from directed activities to more self-directed experiences.

Learning develops in an atmosphere where individual worth is the hallmark of learning activities.

Close correlation between classroom instruction and clinical experiences is essential to effective competency achievement by the student.

It is the aim and responsibility of the faculty to provide an educational milieu for the student to acquire and apply the knowledge and specialized skills essential to the practice of vocational nursing.

We believe the instructional program should assist the student to:

1. Develop an attitude of self-discipline through personal responsibility toward the learning experiences.

2. Develop the capability of self-direction through personal confidence gained from the learning experiences.

3. Develop the faculty of good nursing judgment through personal diligence exercised in the learning experiences.

4. Develop a capacity for objectivity in regard to self, others, and to life situations through personal acceptance of evaluative measures, assignments, and

A. PRESENT PHILOSOPHY-CONTINUED

evaluative measures, assignments, and interpersonal relationships entailed in the learning experiences.

A. PROPOSED PHILOSOPHY-CONTINUED

interpersonal relationships entailed in the learning experiences.

5. Develop a quest for self-actualization through personal action for continuing human and professional growth.

B. PRESENT PROGRAM OBJECTIVES

The faculty through the planned program of the Pittsburgh Public Schools Practical Nursing Program, aims to provide learning experiences that will assist the student to:

1. Demonstrate competent individualized nursing care by:

   a. Assessing the basic physical, emotional and spiritual needs of the patient and his family in the community.

   b. Applying the elementary scientific principles and concepts of nursing.

   c. Organizing plans of nursing care for selected patients.

   d. Identifying the normal psysiological processes and their deviations.

   e. Performing the skills essential to vocational/practical nursing.

2. Recognize the Vocational/Practical Nurse's role as a contributing member of the health team by:

   a. Demonstrating good interpersonal relationships.

   b. Functioning as an integral member of the team.

3. Grow emotionally, socially and professionally as an individual by:

B. PROPOSED REVISION OF PROGRAM OBJECTIVES

Upon completion of the Pittsburgh Public Schools Practical Nursing Program, the students will be able to:

- Utilize new knowledge and skills to assist individuals in maintaining their health state.
- Communicate effectively with patients and their families, and maintain effective interpersonal relationships.
- Demonstrate personal and professional growth by utilizing opportunities to their fullest potential.
- Assume the responsibilities necessary for a career in nursing.
- Demonstrate good citizenship and a professional spirit of cooperation.

LEVEL OBJECTIVES
LEVEL I

Upon completion of Level I, the students will be able to:

- Identify the needs of a healthy individual and explain how the disease process alters these needs.
- Demonstrate the skills required for giving health care to adult patients having both short- and long-term nursing needs.
- Communicate effectively with patients and members of the health team on a therapeutic level, make and report observations accurately to the appropriate persons and record necessary data.
- Establish positive interpersonal relationships.
- Utilize basic problem solving techniques.
- Assist the professional nurse in a variety of situations.
- Accept guidance and criticism graciously, and with a professional attitude.

B. *PRESENT PROGRAM OBJECTIVES-continued*

a. Applying reasonable judgment.

b. Identifying personal limitations and accepting constructive evaluation.

c. Building on educational and professional foundations.

d. Conducting continuous self-evaluation.

e. Displaying a code of personal and professional behavior based on ethical principles.

B. *PROPOSED REVISION OF PROGRAM OBJECTIVES-continued*

LEVEL II

Upon completion of Level II, the students will be able to:

. Provide safe and effective health care for the mother and infant, as well as for children and adults who have simple or moderately complex nursing needs.
. Utilize appropriate theory in developing a plan of health care based on priorities.
. Obtain required data from a patient and make valid observations.
. Record and report relevant data and effectively utilize non-verbal communications.
. Respond in a positive manner to the emotional and social needs of patients, families, peers, and hospital personnel.
. Interact in a positive and effective manner with peers, hospital personnel, patients, and families, and cope with sources of stress in these interrelationships.
. Administer selected medications competently and safely.
. Accept responsibility for personal behavior, and accept guidance and criticism in a professional manner.
. Demonstrate initiative in seeking additional learning experiences.
. Identify the normal physiological and psychological processes, and explain any deviations in terms of the patient, the family, and the community.

LEVEL III

Upon completion of Level III, the students will be able to:

. Provide appropriate nursing care for patients of all ages.
. Assist the professional nurse in moderate and complex situations.
. Make accurate and objective observations and use the information to make assessments and to plan a course of action.

B. PROPOSED REVISION OF PROGRAM OBJECTIVES-continued

- Administer medications to adult patients.
- Continue to build upon theory learned in the classroom to enhance professional qualifications.
- Recognize personal responsibilities and act accordingly in terms of the patient, the family, and the community.
- Develop and adhere to a professional code of ethics.
- Function effectively as an important member of the total health team.
- Utilize theory and skills to solve problems related to health care.
- Perform self-evaluations, and use the results to further professional growth and development.

Upon completion of Level III, the student should achieve the program objectives.

C. PRESENT CURRICULUM HOUR SYMMARY

Area	Length	Theory Hours	Clinical Experience Hours	Total Hours
Pre-clinical	16 weeks	390	40	430
Clinical	32 weeks	301	869	1170
Vacation	4 weeks, including 7 holidays, are permitted throughout the program.			
TOTAL	52 weeks	691	909	1600

C. PROPOSED REVISED CURRICULUM HOUR SUMMARY

Area	Length	Theory Hours	Clinical Experience Hours	Total Hours
Level I	16 weeks (30 hr/wk)	264	216	480
Three class days and two clinical experience days each week are planned throughout Level I				
Level II	18 weeks (35 hr/wk)	252	378	630
Level III	14 weeks (35 hr/wk)	196	294	490
Two class days and three clinical experience days each week are planned throughout Levels II and III				
Vacation	4 weeks, including 7 holidays, are permitted throughout the program.			
TOTAL	52 weeks	712	888	1600

D. PRESENT CURRICULUM

AREAS OF INSTRUCTION

Pre-Clinical Phase	Theory Hours
Body Structure and Function	45
Personal and Community Health	30
Personal and Vocational Relations	30
Nutrition and Diet Therapy	45
Family Living	30
Introduction to Condition of Illness	30
Drug Therapy	30
Nursing Skills	190
Nursing Lecture 50	
Nursing Laboratory 100	
Clinical Experience 40	
Theory	390 hrs.
Clinical Experience	40 hrs.
Total	430 hrs.16 wks.

Clinical Phase	Theory Hours
Body Structure and Function	16
Personal and Vocational Relations	5
Nutrition and Diet Therapy	15
Drug Therapy	17
Nursing Skills	24
Adult Conditions of Illness	168
Nursing of Mothers and Newborns	32
Nursing of Children	24
Theory	301 hrs.
Clinical Experience	869 hrs.
Total	1170 hrs.32 wks.
Care of Medical-Surgical Patients	22 wks
Obstetrical Nursing	6 wks
Pediatric Nursing	4 wks
	32 wks

Total: 1600 hrs. 48 wks

62

D. PROPOSED REVISION OF CURRICULUM

LEVELS OF INSTRUCTION

Levels of Instruction	Theory Hours	Clinical Experience Hours	Total Hours	Total Weeks
Level I				
Fundamentals of Human Health Care	264	216	480	16
Level II				
Human Health Care I				
Medical-Surgical Nursing I	168	252	420	12
Maternal Child Health Nursing	84	126	210	6
Total	252	378	630	18
Level III				
Human Health Care II				
Medical-Surgical Nursing II	112	168	280	8
Specialty Areas	84	126	210	6
Total	196	294	490	14
Total Hours	712	888	1600	48
	44%	56%		

E. *PRESENT COURSE OVERVIEW*

Phase I: Pre-clinical, 16 weeks at 30 hours per week

Phase I of the Practical Nursing Program is divided into three periods of time. There are approximately twenty-six hours of classroom instruction a week during the first period of the program. The student is introduced to the concept of practical nursing as defined by present social needs. The beginning instruction is designed to aid the enrollee in the transition to a hospital environment and in the orientation as a member of the hospital's health team. The classroom content stresses the basic health needs and the normal development of an individual from infancy to old age with an emphasis on the health needs of one's self, the family, and the community.

During the second period, the teachers stress deviations from normal conditions and related nursing care. The student is given limited, closely supervised exposure to the clinical laboratory. The clinical experiences are correlated with classroom instruction and emphasize individual patient care at a simplistic, uncomplicated level.

The third period of the *Phase I* program is an extension of the classroom instruction with added and progressively more complicated interrelated clinical assignments. The information and nursing skills pertaining to the preparation and the administration of medicines and treatments are integrated with the diversional and rehabilitative principles.

E. *PROPOSED COURSE OVERVIEW*

This program design defines three sequential levels of learning and experience which permit individuals to progress through these levels without duplicating previously acquired knowledge and skills.

Level I, Fundamentals of Human Health Care, stresses basic nursing attitudes, knowledge, and skills, and is sixteen weeks in length. Clinical experience is provided two days a week in a health care facility beginning the third week. The final two weeks of this level provides an evaluation period in which the individual student's comprehension of health care is measured by written tests and skills performance.

Level II, or Human Health Care I, comprises eighteen weeks of the total course and is divided into *Modules A* and *B*. These modules of learning are flexible and are constructed in such a way that each can be lifted from the scheduled sequence and taught at anytime throughout the second level ensuring optimal correlation of theory and practice. *Module A* consists of twelve weeks of medical-surgical nursing and presents the knowledge and conditions of dysfunction. The underlying principles of nursing are brought out in the care of general types of patients and in the care of selected conditions, with the idea that application of the learned principles can be made easily to other specific conditions. *Module B* is a six week continuum of *Level II* and introduces the student to maternal child health care with emphasis on the healthy family unit.

Level III, Human Health Care II, consists of fourteen weeks and also is divided into an *A* and *B Module*. In *Module A,* moderately complex medical-surgical nursing

E. PRESENT COURSE OVERVIEW-continued

Phase II: Clinical, 32 weeks at 35 hours per week

Phase II is a combination of classroom instruction and supervised clinical experience. The instructional program is largely conducted in one of the cooperating hospitals and is based on a thirty-five hour work week. There are no trainees scheduled for evening or night instructional experiences. Weekend experiences may be arranged only if the work experience is correlated with the instructional program. Relevant observations or minimal experience includes Central Service, Operating Room, Recovery Room, Inhalation Therapy, Intensive Patient Care, and Related Clinical duties. Visits to community organizations and agencies are arranged to enable the trainees to become knowledgeable about mental health facilities, geriatric nursing care facilities, home care for individuals, and rehabilitation programs for the blind, deaf, and physically disabled.

64

E. PROPOSED COURSE OVERVIEW-continued

needs are presented in this eight week session. *Module B* of *Level III* offers a four week experience in various specialty areas within the clinical facility. The final two week period of the course is an evaluation process which allows the student to make the transition from student to graduate practical nurse.

Health care experiences during *Levels II* and *III* consist of three days in a clinical facility and two days in a classroom setting each week.

Each of the three levels is designed to offer career opportunities indicated as spin-in and spin-off areas of achievement. An important goal of this program is to present the vehicle and stimulus for continued personal and professional growth; therefore, adequate provision for articulation and advanced placement based upon demonstrated competencies and validated previous and present education and experience is essential.

F. *PRESENT COURSE DESCRIPTIONS*

Nursing Principles and Practices

The 214 hours devoted to principles and practice are comprised of 150 hours of classroom instruction (50 hours of theory and 100 hours of laboratory practice) and 40 hours of supervised clinical practice in *Phase I* with 24 additional hours of advanced nursing theory and laboratory practice given in *Phase II* The instruction is designed to give the student understanding of basic scientific principles on which nursing care is based and insights into individual nursing needs of patients. Theory and skills proceed from the relatively simple tasks to the more complex nursing skills.

Personal and Vocational Relationships

This is a 35 hour course which presents the personal and vocational standards of practical nursing. *Phase I* offers 30 hours of content in which the student views herself as an individual with a role on the health team with responsibilities to the patient, the team, and the vocation. She is introduced to her personal, ethical, legal and vocational responsibilities. At the latter part of *Phase II* this course offers 5 hours in which the responsibilities to identify with practical nursing through membership in organizations and the continuing education process are stressed.

Structure and Function

The basic organization of the body structure and the interdependency of its units comprises the content of the 61 hours of instruction in this area of the training. This knowledge is gained by studying the functional make-up of the

F. *PROPOSED COURSE DESCRIPTIONS*

Level I

Fundamentals of Human Health Care

Length:	16 weeks
Theory:	264 hours
Practice:	216 hours
TOTAL:	480 hours

This level stresses basic nursing attitudes, knowledge, and skills.

The first two weeks includes an orientation to the program, the learning process, and the student's responsibilities as a member of the health profession.

The course progresses from a healthy individual, the needs of that individual, and the methods of maintaining the individual's health, to an introduction to the processes of disease. Anatomy and physiology is introduced at this level but only the very basic structures and their functions are included.

The student is introduced to the natural phenomenon of advancing age which includes all of the changes, needs, and responsibilities of care, families, and society.

In addition, principles of interpersonal relationships, communications, and personal and community health are presented. Normal nutrition is integrated throughout this period.

Health care skills related to the patient's basic and special needs are emphasized with correlated theory and practice in giving basic health care to adult patients with simple short-and long-term care. Beginning the third week, clinical experience is provided two days a week in a health care facility.

body from the simplest unit of the cell to the complex body system.

There are forty-five hours of Structure and Function content in *Phase I*. In *Phase II*, there are 16 hours of related content taught in Medical-Surgical and Obstetric Nursing.

Nutrition and Diet Therapy

This is a sixty hour course and is designed help the student acquire a practical knowledge of good nutrition and its relation to health. It includes basic knowledge of diet therapy and the modifications of diets as a contribution to the total nursing care of patients. In *Phase I*, 33 hours of Nutrition and 12 hours of Diet Therapy are taught. In *Phase II*, there are 15 hours of related diet therapy taught in Medical-Surgical, Obstetric, and Pediatric Nursing.

Personal and Community Health

The thirty-hour course given in *Phase I*, stresses principles related to the maintenance of optimum personal, physical, and mental health and its value to all people. It includes the prevention and the control of disease on the local, national, and international levels. It gives the student an insight into existing community health problems and the availability of resources to alleviate the problems. Community health issues and agencies for the prevention and control of health problems are correlated with nursing content in *Phase II* instruction.

Drugs and Solutions

There are a total of forty-seven hours of

Level II

Human Health Care I

Length: 18 weeks
Theory: 252 hours
Practice: 378 hours

TOTAL: 630 hours

Module A of this level consists of twelve weeks of medical-surgical nursing and presents the knowledge and skills essential in caring for persons with intermediate conditions of dysfunction. The emphasis in this level is on anatomy and physiology, pharmacology, nutrition, and the emotional and social factors which are directed toward the patients' positive rehabilitation.

Module B is a six week continuum of *Level II* and introduces the student to maternal child health care. The healthy family unit is stressed and includes the study of normal child bearing, rearing from infancy through adolescence, common childhood health problems, and mothers with special needs. Normal nutritional, psychosocial, and economic needs of the family, as well as the availability of community resources are all an integral part of this learning module.

Health care experiences consist of three days in a clinical facility and two days in a classroom setting each week.

Level III

Human Health Care II

Length: 14 weeks
Theory: 196 hours
Practice: 294 hours

TOTAL: 490 hours

This level also is divided into an *A* and *B*

Drugs and Solutions and Drug Therapy taught in *Phases I* and *II*. In *Phase I*, fifteen hours of Drugs and Solutions which include sources, use and action of drugs, and basic mathematics that apply to the preparation and administration of medications are taught. Also, fifteen hours of introductory Drug Therapy as it relates to the human body are part of the content in *Phase I*, Drug Therapy in Medical-Surgical, Obstetric, and Pediatric Nursing.

Family Living

This thirty hour course in *Phase I* stresses the importance of the family as the basic unit of our society. It gives the student an understanding of normal individual growth and development from infancy through adulthood in relation to family life and development. It includes many of the problems associated with the aging process and the aged.

Introduction to Conditions of Illness

This 30 hour instructional course in *Phase I* introduces the student to the processes of illness in the body and to the deviations from normal health. Broad concepts and simple medical-surgical adult conditions of illness are taught. This includes the direct nursing care that may be essential for the diagnosis, treatment, and optimum recovery of the individual. Content of related courses that contribute to meeting the total needs of the patient and that assist the student in her understanding, observation, and care of the patient are emphasized.

Medical-Surgical Nursing

The content in Medical-Surgical Nursing is a

Module A. In *Module A*, moderately complex medical-surgical nursing needs are presented. This eight week session includes advanced anatomy and physiology, dietary modifications, drug therapy, psychological, and socio-economic factors which influence the patient's progress toward recovery and/or rehabilitation.

Module B of *Level III* offers a four week experience in various specialty areas within the clinical facility. In addition to principles of emergency room, intensive care, and recovery room nursing, the student assesses and implements patient care plans, leadership principles, and teaching responsibilities as a health team member. Administration of medications is continued in total patient care assignments. The role of the vocational/practical nurse in giving first aid and home nursing is taught. Current legislative issues and legal aspects of nursing as they relate to the changing role of the health team are discussed. Career opportunities are explored.

Level III health care experiences consist of three days in a clinical facility and two days in a classroom setting each week.

The final two week period of the course is an evaluation process which allows the student to make the transition from student to graduate practical nurse.

NOTE:

Adequate audio-visual materials and guest speakers from health specialities are utilized throughout the course. Field trips to various health care facilities, institutions, schools, and professional meetings provide additional opportunities to blend theory with practice. The extent to which the use of remedial and enrichment activities are utilized

continuation of the course Conditions of Illness given in *Phase I* of the instructional program. It involves 168 hours of increasingly complex nursing theory and includes Rehabilitative Therapy in addition to the following correlated theory: Nursing Principles and Practice, 19 hours; Structure and Function, 14 hours; Drug Therapy, 15 hours; and Diet Therapy, 12 hours. To supplement the 22 weeks of clinical experience, the instructor plans 12 hours of related patient-centered clinical conferences. During this course, it is expected that the student's role as a practical nurse and as a vital member of the health team, will be crystalized. Previously learned broad subject material will take on specific meaning and the giving of total patient care on the practical nurse level will become a reality.

Obstetric Nursing

This 32 hour course is taught in *Phase II*, In addition, eight hours of Nursing Principles and Practice, Structure and Function, Drug Therapy and Diet Therapy are correlated into the content as well as four hours of planned, patient-centered clinical conferences. There are six weeks of related clinical experiences; four weeks in the case of the mother, which includes labor and delivery, and two weeks in the care of the newborn. Although, the student is introduced to the major complications of the maternity patient, a broad knowledge of nursing in the care of the mother during normal pregnancy and the care of the newborn infant is emphasized.

Pediatric Nursing

This is a 24 hour course taught in *Phase II* of the program. There are eight hours of additional

is dependent upon the individual student's background and potential capacities.

Also, this curriculum includes provisions for student counseling and tutoring, faculty preparation time for teaching responsibilities, and participation in meetings.

related theory and four hours of planned patient-centered clinical conferences. The related theoretical instruction includes Nursing Principles and Practice, Drug Therapy and Diet Therapy. There are four weeks of related clinical experiences, normal growth, development and management of the well child, as a basis for understanding the problems of the sick child in relation to common childhood diseases is stressed. Throughout the course, the child is considered as an individual and as a vital member of the total family.

G. *HEALTH ASSISTANT PROGRAM ADAPTATION TO LEVEL I OF THE PRACTICAL NURSING PROGRAM*

At the present time there is no articulation pattern with these two programs. The objectives and content of both the Health Assistant and Practical Nursing Program are identical in the first level, although placement and presentation differ. Students completing the high school course and those completing *Level I* of the proposed Practical Nursing Program have the option of entering the health industry with entry-level skills or proceeding to *Level II* of the Practical Nursing Program.

G-1. PROPOSED PRACTICAL NURSING PROGRAM

Hour Summary: 6 hours per day

Level I	Theory	264 hours
	Clinical Experience	216 hours
	TOTAL	480 hours
Level II	Theory	252 hours
	Clinical Experience	378 hours
	TOTAL	630 hours
Level III	Theory	196 hours
	Clinical Experience	294 hours
	TOTAL	490 hours
	GRAND TOTAL	1600 hours

G-1. PROPOSED HEALTH ASSISTANT PROGRAM

Hour Summary: 90 minutes per day - Eleven and Twelfth Grades

Health Assistant I	Theory	174 hours
	Clinical Experience	96 hours
	TOTAL	270 hours
Health Assistant II	Theory	150 hours
	Clinical Experience	120 hours
	TOTAL	270 hours
PROGRAM TOTAL	THEORY	324 hours
	CLINICAL EXPERIENCE	216 hours
	TOTAL	540 hours

NOTE: Graduating high school students electing *Level II* of the Practical Nursing Program must be present a minimum of 480 hours.

Level II	Theory	252 hours
	Clinical Experience	378 hours
	TOTAL	630 hours
Level III	Theory	196 hours
	Clinical Experience	294 hours
	TOTAL	490 hours
	GRAND TOTAL	1660 hours

G-2. *PROPOSED PRACTICAL NURSING PROGRAM*
Unit Summary

LEVEL I - FUNDAMENTALS OF HUMAN HEALTH CARE

	HOURS
I. The First Step	30
II. The Health Individual	76
III. The Natural Phenomenon of Aging	15
IV. Introduction to the Processes of Disease	30
V. Introduction to Pharmacology	30
VI. Health Care Skills Related to the Patient's Basic Needs	48
VII. Health Care Skills Related to the Patient's Special Needs	35
VIII. Clinical Experience*	216
TOTAL	480 hours

*In cooperating health care facilities

G-2. *PROPOSED HEALTH ASSISTANT PROGRAM*
Unit Summary

HEALTH ASSISTANT I

	HOURS
I. Introduction to Health Assisting	20
II. The Healthy Individual	76
III. Introduction to Processes of Disease	30
IV. Health Care Skills I	48
V. Clinical Experience*	96

HEALTH ASSISTANT II

I. Review of Content Covered in Health Assistant I	15
II. The Natural Phenomenon of Aging	30
III. Home Care	15
IV. Introduction to Pharmacology	30
V. Health Care Skills II	60
VI. Clinical Experience*	120
TOTAL	540 hours

*One general hospital and one nursing home are utilized.

H. *PRESENT OPPORTUNITY FOR ARTICULATION AND ADVANCED STANDING*

At present there is no opportunity for granting advanced standing.

72

H. *PROPOSED OPPORTUNITY FOR ARTICULATION AND ADVANCED STANDING*

The nursing profession is viewed as a whole, developed along an educational continuum with a multi-entry system.

The individual has a right to an educational opportunity which will enhance personal growth and develop full potential, and previous educational foundations.

The faculty of the Pittsburgh Public Schools Practical Nursing Program believes that this theoretical construct for the program curriculum allows, individuals from various health programs such as nurses' aids, practical nurses licensed by waiver, and corpsmen who wish to qualify for advanced standing at this first or second entry level may do so by applying and meeting the standards of the level best suited for the individual. The graduate from the Health Assistant II program articulates into Level II of the Practical Nursing Program.

Conversely, students who are enrolled in this program could voluntarily or by recommendation of the faculty, withdraw from the program at the end of the first or second level and would be qualified to find employment in specific health agencies in a role other than that of a practical nurse.

H.1 *ARTICULATION STANDARDS FOR HEALTH ASSISTANT II APPLICANT*

Graduates of the Health Assistant II program who wish to apply for articulation in the Practical Nursing Program must meet the following requirements:

1. Must have a high school diploma.

2. Be 18 years of age before or upon completion of the Practical Nursing Program.

H. PROPOSED OPPORTUNITY FOR ARTICULATION AND ADVANCED STANDING

3. Evidence of good mental and physical health as determined by a complete physical examination.

4. Satisfactory competency rating in nursing skills; attainment of an 80 percent proficiency in theory.

5. Demonstrate aptitude and interest in practical nursing as evidence by conscientious nursing care, good interpersonal relationships with hospital personnel; seeks initiative in new learning experiences.

6. Present and punctual for a minimum of 480 hours.

7. No personal responsibilities which place limitations on the student's performance.

H.2 ADVANCED STANDING REQUIREMENTS FOR FIRST LEVEL ENTRY APPLICANTS

The faculty of the Pittsburgh Public Schools Practical Nursing Program proposes that the following criteria be adopted to grant advanced standing to an applicant who wishes to enroll in the program beginning with Level II of the Practical Nursing Program.

The applicant must meet all regular requirements that apply to any applicant who wishes to enroll in this program.

1. Resident of Pennsylvania

2. Minimum age 17 years

3. High school diploma or its equivalent as evaluated by the Department of Education

4. Evidence of good mental and physical health as determined by a complete physical examination.

5. Satisfactory rating on pre-entrance aptitude tests.

6. Personal qualifications evaluated through written references and personal interview by faculty. These include a genuine interest in people and aptitude for nursing.

7. No personal responsibilities which place limitations on the student's performance.

The applicant must meet these additional requirements:

1. Show evidence of having worked with adult patients in giving nursing care for a minimum of 480 hours prior to date of application. The 480 hours of experience must have been obtained within two years prior to application.

2. Have satisfactory personal references from employers, supervisors and/or school officials which demonstrate to the faculty satisfactory achievement of Fundamentals of Health Care objectives. The type of experience shall be similar to those offered in Level I of the Practical Nursing Program.

3. Receive a satisfactory score in a written comprehensive examination and demonstrate selected nursing skills taught in Fundamentals of Health Care.

4. The applicant for advanced standing shall be given a copy of the course outline in Fundamentals of Health Care prior to the examination.

H. PROPOSED OPPORTUNITY FOR ARTICULATION AND ADVANCED STANDING

5. The applicant shall be granted advanced standing only if the faculty believes that such a decision is educationally sound for the applicant concerned.

H.3 ADVANCED STANDING REQUIREMENTS FOR SECOND LEVEL ENTRY APPLICANTS

1. The applicant must meet all of the regular requirements which apply to an applicant who wishes to enroll in the program.

2. This applicant must meet these additional requirements:

   (1) Show evidence of having worked with patients of all ages in giving nursing care of a minimum of 1100 hours, prior to the date of application. Also, this experience must have been obtained within two years prior to the date of application.

   (2) Have satisfactory personal references from employers, supervisors, and/or school officials.

   (3) Demonstrate to the faculty satisfactory achievement of the Fundamentals of Health Care and Human Health Care I objectives. The type of experience shall be similar to those offered in the above areas. Receive a satisfactory score on a written comprehensive examination and a demonstration of selected skills that are taught in these areas. Questions shall be taken from the final examinations of the previous two levels.

(4) Each applicant will be given the course outline with recommended reading prior to taking this examination.

(5) Recieve a satisfactory score on the NLN National League for Nursing three units of content standardized achievement test.

(6) The applicant shall be granted advanced standing only if the faculty believe that such a decision is educationally sound for the applicant concerned.

(7) In order to qualify for graduation from the Pittsburgh Practical Nursing Program, students with advanced standing must complete a minimum of fourteen weeks in the program.

I. MASTER ROTATION PLAN FOR PRACTICAL NURSING PROGRAM STUDENTS

SAMPLE

Hospital _____

Pittsburgh Public Schools Practical Nursing Program

Number of Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
																																																		V	V	V	V
Month of																																																	a	a	a	a
Week of																																																	c	c	c	c
1.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =				
2.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	a	a	a	a
3.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	t	t	t	t
4.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	i	i	i	i
5.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	o	o	o	o
6.																																																	n	n	n	n
7.																																																				
8.																																																				
9.																																																				
10.																																																				
11.																																																				
12.																																																				
13.																																																				
14.																																																				
15.																																																				

CODE:

7. Fundamentals *

8. Level II Module A /

9. Level II Module B .

10. Level III Module A "

11. Level III Module B +

12. Evaluation =

13. Vacation time -- follows school calendar with a

14. total of 4 weeks vacation throughout the year.

15.

77

J. *PRESENT INFORMATION AVAILABLE TO POTENTIAL PRACTICAL NURSING STUDENTS*

Pittsburgh Public Schools
PRACTICAL NURSING PROGRAM
FACT SHEET

Approved: Pennyslvania Department of Education
Pennsylvania State Board of Nurse Examiners

Program: The Practical Nursing Program is a full-time, 12 month course.

In the first phase, 16 weeks are spent mainly in classroom instruction with a gradual introduction to the hospital environment and nursing practice. Classes are held from 8:00 a.m. to 3:00 p.m., Monday through Friday at Connelley Skill Learning Center, 1501 Bedford Avenue, Pittsburgh, Pennsylvania 15219. Among the subjects studied are nursing principles and practice, body structure and function, personal and community health, drugs and their uses, family living, nutrition and foods.

During the second phase, 32 weeks are spent in supervised clinical experience with classroom instruction in a cooperating hospital. In the hospital, the student's experience days are from 7:00 a.m. to 2:30 p.m. and 35 hours per week. Instruction and related practice are given in Medical-Surgical Nursing, Obstetric Nursing and Pediatric Nursing. Seven legal holidays, plus vacation amounting to four weeks, are permitted during the length of the program.

J. *PROPOSED INFORMATION AVAILABLE TO POTENTIAL PRACTICAL NURSING STUDENTS*

Upon approval of proposed changes, a brochure will be developed.

J. PRESENT INFORMATION AVAILABLE TO POTENTIAL PRACTICAL NURSING STUDENTS-continued

Entrance Requirements:

The course is open to men and women who are seeking employment in the health services.

Each applicant must:

- Be 17 years of age or over.
- Be a high school graduate with a diploma from an accredited school or it's equivalent.
- Have a sincere interest in nursing and a desire to serve people.
- Provide good character references.
- Manifest suitability for learning as indicated by personal interviews and aptitude tests.
- Be in good health as evidenced by physical examination, including immunizations.

Cooperating Hospitals:

Allegheny General Hospital
Montefiore Hospital
Sewickley Valley Hospital
Shadyside Hospital
South Side Hospital
St. Margaret Memorial Hospital
Western Pennsylvania Hospital

Costs: Students must purchase textbooks, uniforms, shoes, other supplies, and are responsible for their own immunizations. The cost of books and uniforms is approximately $150.00

CE 009 592

J. *PRESENT INFORMATION AVAILABLE TO POTENTIAL PRACTICAL NURSING STUDENTS-continued*

Tuition: All students will pay approximately $70.00 per month tuition for the 12 month course.

Applications:

Application must be made in person at the Pennsylvania State Bureau of Employment Security Office. Offices are open Monday through Friday, 8:30 a.m. to 5:00 p.m.; closed holidays.

For more complete information regarding applications, please call 565-2622.

98

VT 133 413

PRACTICAL NURSING

COURSE OF STUDY

THE BOARD OF PUBLIC EDUCATION

PITTSBURGH, PENNSYLVANIA

CE 009 543

PRACTICAL NURSING

Course of Study

(Preliminary Version)

82

DEPARTMENT OF EDUCATIONAL PROGRAM DEVELOPMENT

THE BOARD OF PUBLIC EDUCATION

Jerry C. Olson, Superintendent

PITTSBURGH, PENNSYLVANIA

March, 1976

PREFACE

This publication is a part of the evolving design for teaching and learning that the professional staff of the Pittsburgh Public Schools is creating.

The curriculum is the central skeleton upon which the teacher builds the planning for learning. It gives constancy and structure to the educational process, never inhibiting or containing the freedom of the teacher, but rather encouraging him to teach creatively and innovatively within its framework.

Curriculum development in a good school system never stops. As our society changes, and as our body of academic knowledge changes, and as our knowledge of the learning behavior of children changes, so must curriculum respond. It is in this spirit that this document has been thoughtfully and conscientiously developed by our colleagues, for the good of all children and teachers in Pittsburgh. It represents the legal authority of the people through the Board of Education, in declaring what children should learn, and it represents the best judgment of our faculty in declaring the processes through which these ends are achieved.

But no curriculum guide, no matter how close to perfection it may aspire, is of any value until it is wholly possessed by all the teachers who come within its scope. Accordingly, I commend this guide to all teachers concerned, and ask that you make it a product of your own individual commitment, and contribute to its continued improvement over the years.

Superintendent of Schools

WRITING COMMITTEE

Teachers of Practical Nursing

Kathryn T. Evans
Margaret T. Honus
M. Ruth O'Keefe
Anne P. Varriano

Teacher of Health Assisting

Linda Kaib

REVIEW COMMITTEE

Teachers of Practical Nursing

Jane E. Abbott
Myra Lee Abel
Jane E. Albert
Margaret M. Basial
Elizabeth F. Burwin
Margaret M. Capalbo
Dale M. Cattley
Anita M. Donovan
Florence K. Dreibelbis
Joan Ferraro
Catherine S. Gardini
Elizabeth J. Hughey
Wanda H. Major
Laura S. Pears
Frances Toman

ADMINISTRATIVE

Anthony Bellini
Principal,
Connelley Skill/
Learning Center

Louise Allayaud
Coordinator,
Licensed Practical
Nursing Program

Kristin Nagg
Project Coordinator,
Health Occupations

Robert G. Lamping
Director,
Occupational,
Vocational, and
Technical Education

Francis J. Rifugiato
Director of Educational
Program Development

Helen S. Faison
Assistant Superintendent,
Secondary Schools

ACKNOWLEDGMENTS

The Practical Nursing committee wishes to express its appreciation to the following individuals without whose support this curriculum would not have been possible:

A. Louise Harding
Senior Program Specialist
Health Occupations
Trade and Industry Education
Department of Education Regional Office

Leonard Liguori
Vocational Field Consultant
Business Education
Department of Education Regional Office

Eleanor Deigner
Vocational Field Consultant
Health Occupations
Department of Education Regional Office

C O N T E N T S

Introduction i

Philosophy iii

General Objectives v

Level Objectives v

Safety Rules viii

Scope and Sequence Chart x

Level I

Fundamentals of Human Health Care . . . . . A

The First Step 1

The Healthy Individual 11

The Natural Phenomenon of Advancing Age 40

Introduction to the Processes of Disease 46

Principles of Pharmacology 52

Health Care Skills Related to the Patient's Basic Needs 61

Health Care Skills Related to the Patient's Special Needs 79

Level II

Human Health Care I . . . . . B

Module A Medical-Surgical Nursing I C

Introduction to Basic Concepts of Human Health Care 91

Nursing the Patient with Problems of Locomotion. 94

Nursing the Patient with Cardiovascular Impairment I 107

Nursing Concepts in the Care of Respiratory Embarrassment I 118

Basic Concepts of Nursing Applied to Patients with Neurological Symptoms I 126

The Impact of Audio-Visual Impairment on the Individual I 136

Concepts Basic to the Care of Patients with Common Gastro-Intestinal Disturbances I 146

Nursing the Patient with Genito-Urinary Dysfunction I 156

Nursing the Patient with Metabolic Imbalances I 169

Nursing the Patient with Allergic Reactions I 178

Module B Maternity-Child Health Nursing . . . . . D

Obstetrics 185

Pediatrics 212

Level III

Human Health Care II . . . . . E

Module A Medical-Surgical Nursing II . . . . . F

Nursing the Patient with Problems of Locomotion II 241

Nursing the Patient with Cardiovascular Disorders II 249

Nursing Concepts in the Care of Patients with Respiratory Embarrassment II 255

Basic Concepts Applied to Patients with Neurological Conditions II 263

The Impact of Audio-Visual Impairment in the Individual II 267

Concepts Basic to the Care of Patients with Gastro-Intestinal Disturbances II 277

Nursing the Patient with Genito-Urinary Dysfunction II 287

Nursing the Patient with Metabolic Imbalances II 297

Nursing the Patient with Problems Involving Disfigurement 303

Module B Specialized Nursing . . . . . G

Specialty Areas 311

Nursing Opportunities 322

Bibliography . . . . . H

Textbooks 330

Audio-Visual Aids 336

Appendix I

Clinical Experience 341

Opportunity for Granting Advanced Standing 342

INTRODUCTION

The Licensed Practical Nurse is a trained person who, after completion of an approved educational program, is prepared to apply human health care skills to patients in hospitals, extended care facilities, offices, industries, and homes under the supervision of a licensed physician and/or a registered professional nurse.

This curriculum design defines sequential levels of learning and experience which permit individuals to progress through these levels without duplicating previously acquired knowledge and skills.

The program is developed on three levels. *Level I, Fundamentals of Human Health Care,* stresses basic nursing attitudes, knowledge, and skills, and is sixteen weeks in length. Health care skills related to the patient's basic and special needs are emphasized with correlated theory and practice. In addition, the student is introduced to principles of interpersonal relationships, communications, personal and community health and the phenomenon of aging. Normal nutrition is integrated throughout this period. Clinical experience is provided two days a week in a health care facility beginning the third week. The final two weeks of this level will be an evaluation period in which the individual student's comprehension of health care is measured by written tests and skills performance.

Level II or Human Health Care I comprises eighteen weeks of the total course and is divided into Modules A and B. These modules of learning are flexible and are constructed in such a way that each can be lifted from the scheduled sequence and taught at any time throughout the second level ensuring optimal correlation of theory and practice. *Module A* consists of twelve weeks of medical-surgical nursing and presents the knowledge and skills essential in caring for persons with intermediate conditions of dysfunction. The emphasis in this level is on anatomy and physiology, pharmacology, nutrition, and the emotional and social factors which are directed toward the patients' positive rehabilitation. The underlying principles of nursing are brought out in the care of general types of patients and in the care of selected conditions, with the idea that application of the learned principles can be made easily to other specific conditions.

Module B is a six week continuum of *Level II* and introduces the student to maternal child health care. The healthy family unit is stressed and includes the study of normal child bearing, rearing from infancy

through adolescence, common childhood health problems, and mothers with special needs. Normal nutritional, psychosocial, and economic needs of the family, as well as the availability of community resources are all an integral part of this learning module.

In *Level III, Human Health Care II* consists of fourteen weeks and also is divided into an A and B Module. In *Module A,* moderately complex medical-surgical nursing needs are presented. This eight week session includes advanced anatomy and physiology, dietary modifications, drug therapy, psychological, and socio-economic factors which influence the patient's progress toward recovery and/or rehabilitation.

Module B of Level III offers a four week experience in various specialty areas within the clinical facility. In addition to principles of emergency room, intensive care, and recovery room nursing, the student assesses and implements patient care plans, leadership principles, and teaching responsibilities as a health team member. Administration of medications is continued in total patient care assignments. The role of the vocational/practical nurse in giving first aid and home nursing is taught. Current legislative issues and legal aspects of nursing as they relate to the changing role of the health team are discussed. Career opportunities are explored.

The *final two week period* of the course is an evaluation process which allows the student to make the transition from student to graduate practical nurse.

Health care experiences during *Levels II and III* consists of three days in a clinical facility and two days in a classroom setting each week.

All units in this course of study follow the same general pattern in order to form good habits on the part of the student and ease in teaching. Many areas of information have not been made separate units in the belief that they should be thought of as a part of each nursing situation and should be integrated into the thinking about each patient.

Adequate audio-visual materials and guest speakers from health specialties are utilized. Field trips to various health care facilities, institutions, schools, and professional meetings provide additional opportunities to blend theory with practice. The extent to which the use of remedial and enrichment activities are utilized will be dependent upon the individual student's background and potential capacities.

Each of the three levels is designed to offer career opportunities indicated as spin-in and spin-off areas of achievement. An important goal of this course of study is to present the vehicle and stimulus for continued personal and professional growth; therefore, adequate provision for articulation and advanced placement based upon demonstrated competencies and validated previous and present education and experience is essential.

Philosophy

The faculty of the Pittsburgh Public Schools Practical Nursing Program postulates this theoretical construct for the program curriculum and asserts that:

- Nursing is a health profession.
- Health is viewed as the person's normal state of well being throughout human development.
- The concept of human development is a life gestalt, i.e., prenatal life through death.
- Fundamental to the integrity of the life cycle are developmental, family, and health needs.
- The practice of nursing derives its impetus from these concepts of human needs and the family.
- Nursing recognizes the right of every individual to an optimum health state in the process of human development.

The nursing profession is responsible for the promotion of normal health maintenance among individual and for health state stabilization in physical and mental dysfunction.

The nursing profession is viewed as a whole, developed along an educational continuum with a multi-entry system for progressive competency positions, i.e., paraprofessional, vocational/practical, technical, and professional.

Each nursing locus of the continuum affords mobility to another locus, enabling an individual to develop full potential, while progressing according to his/her learning abilities and previous education foundations. Nursing education is a continuing process for professional and personal development.

Vocational/practical nursing is the level of the nursing continuum which prepares the practitioner to promote the maintenance of an individual's normal health state and to assist in stabilization of the health state during physical and mental dysfunction.

The vocational/practical nurse functions as an integral member of the health team under the direction of a health professional in a variety of settings, such as hospitals, homes, and community agencies.

Education is a progressive process of self-growth throughout one's human development.

The student has a right to an educational opportunity which will enhance personal growth.

The faculty is the facilitator of the educational process, providing a learning climate which stimulates and motivates the student to fullest development.

Learning is characterized by expected behavioral changes in skills, knowledge, and attitudes. These behavioral changes are the competency/learning objectives required by the educational process of the curriculum.

Achievement of curriculum competencies through increasing self-direction by the student is under the guidance of the faculty.

Learning evolves from the fundamental level to the complex. It develops progressively from directed activities to more self-directed experiences.

Learning develops in an atmosphere where individual worth is the hallmark of learning activities.

Close correlation between classroom instruction and clinical experiences is essential to effective competency achievement by the student.

It is the aim and responsibility of the faculty to provide an educational milieu for the student to acquire and apply the knowledge and specialized skills essential to the practice of vocational nursing.

We believe the instructional program should assist the student to:

1. Develop an attitude of self-discipline through personal responsibility toward the learning experiences.
2. Develop the capability of self-direction through personal confidence gained from the learning experiences.
3. Develop the faculty of good nursing judgment through personal diligence exercised in the learning experiences.
4. Develop a capacity for objectivity in regard to self, others, and to life situations through personal acceptance of evaluative measures, assignments, and interpersonal relationships entailed in the learning experiences.
5. Develop a quest for self-actualization through personal action for continuing human and professional growth.

GENERAL OBJECTIVES

Upon completion of the Pittsburgh Public Schools Practical Nursing Program, the students will be able to:

- Utilize new knowledge and skills to assist individuals in maintaining their health state.
- Communicate effectively with patients and their families, and maintain effective interpersonal relationships.
- Demonstrate personal and professional growth by utilizing opportunities to their fullest potential.
- Assume the responsibilities necessary for a career in nursing.
- Demonstrate good citizenship and a professional spirit of cooperation.

LEVEL I

Upon completion of Level I, the students will be able to:

- Identify the needs of a healthy individual and explain how the disease process alters these needs.
- Demonstrate the skills required for giving health care to adult patients having both short- and long-term nursing needs.
- Communicate effectively with patients and members of the health team on a therapeutic level, make and report observations accurately to the appropriate persons, and record necessary data.
- Establish positive interpersonal relationships.
- Utilize basic problem solving techniques.
- Assist the professional nurse in a variety of situations.
- Accept guidance and criticism graciously, and with a professional attitude.

LEVEL II

Upon completion of Level II, the students will be able to:

- Provide safe and effective health care for the mother and infant, as well as for children and adults who have simple or moderately complex nursing needs.
- Utilize appropriate theory in developing a plan of health care based on priorities.
- Obtain required data from a patient and make valid observations.
- Record and report relevant data and effectively utilize non-verbal communications.
- Respond in a positive manner to the emotional and social needs of patients, families, peers, and hospital personnel.
- Interact in a positive and effective manner with peers, hospital personnel, patients, and families, and cope with sources of stress in these interrelationships.
- Administer selected medications competently and safely.
- Accept responsibility for personal behavior, and accept guidance and criticism in a professional manner.
- Demonstrate initiative in seeking additional learning experiences.
- Identify the normal physiological and psychological processes, and explain any deviations in terms of the patient, the family, and the community.

LEVEL III

Upon completion of Level III, the students will be able to:

- Provide appropriate nursing care for patients of all age groups, with a variety of illnesses.
- Assist the professional nurse in moderate and complex situations.
- Make accurate and objective observations and use the information to make assessments and to plan a course of action.

LEVEL III (Continued)

- Administer medications to adult patients.
- Continue to build upon theory learned in the classroom to enhance professional qualifications.
- Recognize personal responsibilities and act accordingly in terms of the patient, the family, and the community.
- Develop and adhere to a professional code of ethics.
- Function effectively as an important member of the total health team.
- Utilize theory and skills to solve problems related to health care.
- Perform self-evaluations, and use the results to further professional growth and development.

SAFETY RULES

Safety is a major concern in every type of work, but it is of particular importance in health occupations as this field is primarily people oriented. The patient has a right to expect a safe environment. Everybody in the hospital is involved in the patient's safety. Specific safety rules are stressed throughout the curriculum and should be reinforced with each lesson as well as mention of the legal aspects which are involved.

General Safety Rules:

1. Two general principles related to safety
   a. accidents can be prevented by alertness and planning
   b. safety rules protect every individual

2. Orientation to fire extinguisher and fire drill directions with practice sessions.

3. Do not work with a piece of equipment until you learn how to use it.

4. Check electrical equipment for frayed cords, broken plugs and wall socket over-usage.

5. All electrical cords or machines are handled with dry hands.

6. In disconnecting machines from electric outlets; grasp pulling the electric plug. Do not pull or jerk cord.

7. Electric cords can trip you. Place them out of the way. Remove when not needed.

8. If motor on an electric machine jams or sticks, disconnect electric cord from machine or wall outlet at once.

9. In case of fire or accident turn off any electric machine sut off the power at the master switch.

10. Do not make adjustments or clean machine while machine is in motion.

11. Dispose of contaminated materials per strict procedure.

12. A spill is treacherous. Clean up immediately or block off area until clean.

13. Wash hands thoroughly and frequently to prevent infection.

14. Keep cleaning fluids and disinfectants in metal cabinets.

15. Dispose of broken glass and sharp objects in appropriate container. Handle carefully!

Safety Rules (cont'd.)

Specific Safety Rules:

1. Hair must be pulled back and secured at all times.
2. No jewelry, except wedding band and watch.
3. Practice good posture and effective body mechanics at all times.
4. A uniform should be clean and complete at all times.
5. All equipment coming in contact with patient should be clean; practice good cleansing methods.
6. Check equipment and inspect it for breaks, cracks, or rough places. Replace broken or damaged equipment. Do not try amateur repairs.
7. Align beds correctly. Gatch bed cranks should be always left in correct position.
8. Use bed rails on both sides whenever conditions warrant.
9. Place call bells within reach of patient at all times.
10. Do not use torn linens.
11. Respect patient's personal possessions.
12. Record and report pertinant observations accurately, completely, and carefully.
13. Respect confidential information regarding patient.
14. Use sound judgment in caring for patients.
15. Know hospital's fire procedure and emergency plan. Be able to assist in evacuation of helpless patients.
16. Specific procedures are to be performed under teacher supervision only
    a. the administration of medications
    b. all sterile techniques

SCOPE AND SEQUENCE CHART

PRACTICAL NURSING

CONTENT	UNIT	RECOMMENDED TIME
FUNDAMENTALS OF HEALTH CARE-BASIC SCIENCES	LEVEL I	480 hrs.
THE FIRST STEP	I	30 hrs.
General Orientation		
Administration and faculty		
Introductions		
Lines of authority		
Tour of school		
The Learning Process		
Student responsibilities		
Study requirements		
Reference materials		
Math pretest		
Professional appearance		
Classroom		
Hospital		
Health care delivery system		
Hospital departments		
Extended care facilities		
Health maintenance organizations		
Home health services		
Student role and responsibilities on the health team		
Legal and ethical aspects		
Introduction to the Nurse-Patient relationship		
Cultural differences		
Common courtesies in patient relationships		
THE HEALTHY INDIVIDUAL	II	126 hrs.
The basic needs of individuals		
Physical needs		
Emotional needs		
Mental health		
Personality		
Emotional patterns		
Social needs		
Peer group		
Methods of communications		
Health community		
Introduction to Bacteriology		
Protection		
Preventing on community health problems		
Food safety		
Sanitary principles		
Storage and preparation of food		
Factors that cause food poisoning		
Governmental agencies		
Spiritual needs		
Personal philosophies		
Organized religions		
Introduction to the organization of the human body		
The general plan of the body		
Body cavities or divisions		
Body directions and planes		
Basic cell structure and functions		
Tissues		
Membranes		
Organs		
Systems gross structure and functions		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Skin		
Musculo-skeletal		
Digestive-food-digestion		
Circulatory		
Respiratory		
Nervous		
Endocrine		
Reproductive		
Urinary		
Maintaining a healthy body		
Posture body mechanics		
Foot health		
Normal nutrition relationship of good nutrition to health		
Definition signs of poor nutrition		
Basic four group		
Recommended daily allowances		
Sources and function		
Use of calorie tables		
Psychological importance of food		
Principles of planning and buying food		
Principles of storing and cooking food		
Dental health		
Personal hygiene		
Eye care		
Addiction habits		
Diverson and recreation		
Simple first aid measures		
Accident prevention		
Simple wounds		
Fainting		
Bleeding		
Shock		
Fractures		
Burns		
Poisoning		
Emergency treatment		
Periodic physical examination		
THE NATURAL PHENOMENON OF ADVANCING AGE	III	15 hrs.
Introduction to aging		
Individual changes		
Family relationships		
Special geriatric needs		
General hygiene		
Nutrition for the aged		
Safety		
Hoursing facilities		
Diverion and rehabilitation		
Community resources and responsibilities		
Legal aspects		
Attitudes toward death		
INTRODUCTION TO THE PROCESSES OF DISEASE	IV	30 hrs.
Normal body defenses		
Classification and causes		
Predisposing factors		
Course of disease		
Inflammation		
Regeneration of body tissue		
Common signs and symptoms		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Classification of observations		
Specific observations		
Nursing measures		
Basic diagnostic procedures		
PRINCIPLES OF PHARMACOLOGY	V	30 hrs.
Introduction to pharmacology		
Units of measurement		
Drug standards		
Legal aspects of medication		
Individual responsibilities		
Sources of drugs		
Drug preparations		
Methods of administration		
Drug dosage		
Purposes of drugs		
Action of drugs		
Expected results		
Condition of patient		
Terminology		
Side effects		
Idiosyncratic action		
Toxic action		
Cumulative action		
Antagonistric		
Synergistic		
Abbreviations and symbols		
The written order		
Prescription		
Patient's chart		
Kardex		
Medicine card		
Individual drug data for administration		

CONTENT	UNIT	RECOMMENDED TIME
Common drug classifications with examples		
FUNDAMENTALS OF HUMAN HEALTH CARE-SKILLS	VI	114 hrs.
Related to Patient's basic needs		
General environmental needs		
Introduction to medical asepsis		
Handwashing		
Care of the patient's unit		
Admission procedures		
Application of communication skills		
Height and weight		
Temperature, pulse and respiration		
Blood pressure		
Simple physical observations		
Introduction to medical terminology		
Elementary charting of observations		
Introduction to kardex		
Reminder sheets		
Assignment sheets		
Physical needs of the patient		
Types of hospital beds		
Bedmaking		
Closed bed		
Open bed		
Occupied bed		
Modification for special needs		
Proper body alignment		
Positioning		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Lifting		
Moving		
Personal hygiene		
Bath		
Back care		
Oral hygiene		
Care of the hair		
Shaving		
Nail care		
Special considerations		
Bowel and bladder functions		
Observations		
Charting output		
Incontinence and retention		
Bowel and bladder training		
Use of the fracture pan		
Meals and feeding		
Eating patterns		
Care of the environment		
Patient preparation		
Feeding a helpless patient		
Charting fluid intake		
HEALTH CARE SKILLS RELATED TO THE PATIENT'S SPECIAL NEEDS	VII	135 hrs.
Assisting with diagnostic procedures		
Collection of specimens		
Stool		
Sputum		
Observations		
Reporting and recording		
Urine reductions		
Methods		

CONTENT	UNIT	RECOMMENDED TIME
Insulin coverage and recording		
Assisting with physical examinations		
Equipment		
Body positions		
Draping		
Basic treatments		
Support measures		
Binders		
Ace bandages		
Elastic hose		
Applications of heat and cold		
Ice cap		
Hot water bottle		
Sitz bath		
Unsterile moist compresses		
Heat lamp		
Enemas-flatus tube		
Types		
Procedure		
Observations and charting		
Care of equipment		
Advanced procedures		
Problem oriented charting		
Nursing care plan		
Progress notes-SOAPIE		
Post mortem care		
Signs of impending death		
Spiritual needs		
Family support		
Post mortem care procedure		
The surgical patient		
Pre-operative care		
Physical preparation		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Emotional preparation		
Post-operative care		
Observation		
Complications		
Patency of drainage		
Tubes		
Dressing		
Positioning		
Protective care		
Purposes		
Preparation of unit		
Mask and gown technique		
Daily care procedures		
Terminal cleansing		
Introduction to surgical asepsis		
General principles		
Sterilization methods		
Sterile equipment procedures		
Opening sterile package		
Applying sterile gloves		
Changing simple sterile dressings		
Range of motion exercises		
Active		
Passive		
Use of safety devices		
Meeting the needs of the long-term patient		
Hygiene		
Nutrition		
Positioning		
Rehabilitation		
Meeting the physical needs in the home environment		
Improvising with home facilities		

CONTENT	UNIT	RECOMMENDED TIME
Safety aspects		
Community resources		
Preparing and administration medications		
The five rights		
Oral medications		
Special considerations		
Parenteral medications		
Syringes and needles		
Subcutaneous		
Intramuscular		
Safety factors		
HUMAN HEALTH CARE I	LEVEL II	630 hrs.
Introduction to Basic Concepts of Human Health Care	MODULE A	420 hrs.
	I	9 hrs.
Identification of policies		
School		
Clinical facility		
Nursing service department		
Organization of clinical facility		
Functions		
Lines of authority		
Personnel		
Specific departments		
Role of the student practical nurse		
Learning experiences		
Nursing team member		
Tour of physical facilities		
Nursing the Patient with Problems of Locomotion I	II	50 hrs.
Anatomy and physiology		
Common deviations		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Traumatic injuries		
Inflammatory conditions		
Preventive measures		
Medical and surgical management		
Nursing implications		
Diagnostic procedures		
Diet therapy		
Drug therapy		
Psychosocial aspects		
Nursing care and related skills		
Community resources		
Rehabilitative therapy		
Clinical experience		
Nursing the Patient with Cardiovascular Impairment I	III	70 hrs.
Anatomy and physiology		
Common deviations		
Arterial degeneration		
Blood dyscrasias		
Variosities		
Preventive measures		
Therapeutic management		
Common symptoms		
Laboratory test		
Diagnostic procedures		
Nursing responsibilities		
Diet therapy		
Drug administration		
Psychosocial support		
Related nursing care and skills		
Community resources		
Rehabilitative therapy		
Clinical experience		
Nursing Concepts in the Care of Respiratory Embarrassment I	IV	50 hrs.
Anatomy and physiology		
Common conditions		
Colds		
Bronchitis		
Pneumonia		
Tuberculosis		
Preventive measures		
Therapeutic management		
Common symptoms		
Laboratory tests		
Diagnostic procedures		
Protective care principles		
Nursing implications		
Drug therapy		
Emotional support		
Nutritional needs		
Nursing care and related skills		
Socioeconomic aspects		
Rehabilitative therapy		
Community resources		
Clinical experience		
Basic Concepts of Nursing Applied to Patients with Neurological Symptoms I	V	50 hrs.
Anatomy and physiology		
Common conditions		
Cerebrovascular		
Accident		
Epilepsy		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Preventive measures		
Medical management		
Common symptoms		
Diagnostic tests		
Principles of nursing care		
Patient with seizures		
Unconscious patient		
Nursing responsibilities		
Diet adaptations		
Drug therapy		
Psychosocial support		
Rehabilitative factors		
Community resources		
Clinical experience		
The Impact of Audio-Visual Impairment on the Individual I	VI	28 hrs.
Anatomy and physiology		
Preventive emphasis		
Common conditions of the eye and ear		
Screening devices		
Inflammatory disorders		
Injuries		
Therapeutic assessment		
Common symptoms		
Diagnostic tests		
Nursing implications		
Medication administration		
Nutritional needs		
Psychosocial factors		
Special nursing procedures		
Rehabilitative measures		
Community resources		
Clinical experience		

CONTENT	UNIT	RECOMMENDED TIME
Concepts Basic to the Care of Patients with Common Gastro-Intestinal Disturbances I	VII	50 hrs.
Anatomy and physiology		
Common deviations		
Appendicitis		
Gastroenteritis		
Hemorrhoids		
Hernias		
Preventive aspects		
Medical and surgical intervention		
Common symptoms		
Laboratory tests		
Diagnostic procedures		
Nursing responsibilities		
Diet modifications		
Drug therapy		
Nursing care and related skills		
Psychosocial support		
Community resources		
Clinical experience		
Nursing the Patient with Genito-Urinary Dysfunction I	VIII	69 hrs.
Anatomy and physiology		
Common disorders		
Renal calculi		
Urinary tract infections		
Hysterectomy		
Preventive factors		
Therapeutic management		
Etiology		
Common symptoms		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Laboratory tests		
Diagnostic procedures		
Nursing measures		
Drug therapy		
Psychosocial support		
Special nursing procedures		
Catherization		
Catheter irrigation		
Urine strainer		
Vaginal irrigation		
Patient education		
Community resources		
Clinical experience		
Nursing the Patient with Metabolic Imbalances I	IX	28 hrs.
Anatomy and physiology		
Common dysfunctions		
Hyperfunction		
Hypofunction		
Diabetes mellitus		
Therapeutic management		
Predisposing factors		
Common symptoms		
Laboratory tests		
Diagnostic procedures		
Nursing responsibilities		
Diet adaptations		
Medication therapy		
Socio-economic aspects		
Nursing care and related skills		
Approaches to special problems		
Patient education		
Community resources		
Clinical experience		

CONTENT	UNIT	RECOMMENDED TIME
Nursing the Patient with Allergic Reactions I	X	10 hrs.
Anatomy and physiology		
Related medical terminology		
Therapeutic management		
Common symptoms		
Diagnostic tests		
Treatments		
Nursing responsibilities		
Diet modifications		
Drug therapy		
Psychosocial support		
Specific nursing care		
Special considerations		
Individual needs		
Anaphylactic shock		
Emergency measures		
Patient education		
Community resources		
Maternity-Child Health Nursing	MODULE B	210 hrs.
OBSTETRICS	I	105 hrs.
Introduction		
Definition and philosophy		
Promotion and prevention		
Community resources		
Role of the practical nurse		
Preparation for parenthood		
Anatomy and physiology of the reproductive organs		
Expectant mother changes		
Physical		
Psychological		
Components of prenatal care		
Community resources		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Labor experience for the expectant family		
Stages and mechanisms of labor		
Anesthesia and analgesia		
Types		
Advantages		
Disadvantages		
Mother progress		
Physical		
Psychological		
Supportive person needs		
Nursing care and related skills		
Care of new mothers and babies		
Baby care		
Birth adjustment		
Nursing measures		
Characteristics		
Physical and psychological support		
Mother care		
Physical changes		
Psychological aspects		
Nursing measures		
New family education		
Special needs of the family		
Needs and concerns		
Unwed parents		
Teenage parents		
Unwanted baby		
Antepartum period		
Major complications		
Preventive measure		
Labor period		
Forced delivery		
Caesarean section		
Preventive measures		
Postpartum period		
Hemorrhage		
Infection		
Preventive measures		
Newborn complications		
Congenital malformations		
Prematurity		
PEDIATRICS	II	105 hrs.
Introduction to Growth and Development		
Terminology		
Internal and external factors		
Stages and characteristics		
Physical		
Psychological		
Normal growth and development		
Infancy		
Toddlerhood		
Pre-school age		
School age		
Puberty		
Adolescent		
Physical		
Psychosocial		
Nutritional requirements during each age		
Common conditions		
Common cold		
Diarrhea		
Cleft palate		
Accidents		
Spasmodic laryngitis		
Mental retardation		
Tonsillectomy		
Rheumatic fever		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Obesity		
Veneral disease		
Alcoholism		
Special aspects of pediatric nursing		
Minor illnesses		
Complex illnesses		
Short-term		
Long-term		
Parent and patient		
Education		
Community resources		
Clinical experience		
HUMAN HEALTH CARE II	LEVEL III	490 hrs.
Nursing the Patient with Problems of Locomotion II	MODULE A I	280 hrs. 35 hrs.
Musculoskeletal impairment		
Arthroplasty		
Amputation		
Therapeutic management		
Etiology		
Diagnostic techniques		
Courses of treatment		
Complications		
Nursing measures		
Diet therapy		
Drug administration		
Emotional support		
Specific needs		
Rehabilitation patterns		
Community resources		
Clinical experience		
Nursing the Patient with Cardiovascular Disorder II	II	35 hrs.
Coronary conditions		
Coronary artery disorders		
Angina		
Myocardial infarcion		
Congestive heart failure		
Infectious heart conditions		
Heart surgery		
Medical and surgical assessment		
Etiology		
Symptoms		
Therapeutic management		
Diet and drug therapy		
Socio-economics aspects		
Emotional support		
Cardiac emergency care		
Appropriate nursing measures		
Rehabilitation patterns		
Community resources		
Clinical experience		
Nursing Concepts in the Care of Patients with Respiratory Embarrassment II	III	35 hrs.
Advanced respiratory conditions		
Chronic obstructive lung disease		
Cancer of the lung		
Tracheostomy		
Therapeutic management		
Etiology		
Diagnostic procedures		
Medical management		
Oxygen therapy		
Physiotherapy		
Surgical intervention		
Procedures		
Treatments		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Nursing responsibilities		
Environmental control		
Managements of secretions		
Medication administration		
Nutritional needs		
I.P.P.B. and physical therapy		
Psychosocial support		
Patient education		
Specific nursing skills		
Observations		
Suctioning		
Tracheostomy care		
Chest tube drainage		
Ventilation equipment		
Emergency measures		
Respiratory insufficiency		
Respiratory failure		
Community resources		
Rehabilitative aspects		
Clinical experience		
Basic Concepts Applied to Patients with Neurological Conditions II	IV	32 hrs.
Advanced conditions		
Spinal cord and brain		
Injuries		
Neurosurgery		
Head injury		
Herniated lumbar disk		
Anatomy and physiology reinforcement		
Head injury management		
Emergency care		
Hospital care		

CONTENT	UNIT	RECOMMENDED TIME
Nursing considerations		
Observations		
Physical and emotional rest		
Dehydration and output		
Diet management		
Drug administration		
Surgical intervention		
Causes and symptoms		
Diagnostic procedures		
Preventive measures		
Principles of nursing care		
Preoperative		
Postoperative		
Special skills		
Communications		
Rehabilitative patterns		
Community resources		
Clinical experience		
The Impact of Audio-Visual Impairment in the Individual II	V	25 hrs.
Advanced conditions		
Degenerative disorders		
Cataracts		
Detached retina		
Glaucoma		
Meniere's Syndrome		
Otosclerosis		
Partially sighted and blindness		
Hearing loss and deafness		
Medical and surgical management		
Course and symptoms		
Diagnostic tests		
Conservative treatment		
Surgical procedures		
Nursing considerations		
General nursing needs		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Dietary management		
Drug administration		
Emotional support		
Nursing care		
Special nursing needs		
Preoperative care		
Postoperative care		
Activities of daily living		
Community resources		
Rehabilitation patterns		
Clinical experience		
Concepts Basic to the Care of Patients with Gastrointestinal Disturbances II	VI	35 hrs.
Advanced conditions		
Oral surgery		
Cancer		
Peptic ulcers		
Peritonitis		
Ulcerative colitis		
Cholecystitis		
Cirrhosis		
Hepatitis		
Pancreatitis		
Medical and surgical management		
Etiology		
Diagnostic procedures		
Medical treatment		
Surgical procedures		
Preventive measures		
Nursing care responsibilities		
Drug therapy		
Diet management		

CONTENT	UNIT	RECOMMENDED TIME
Emotional support		
Physical care		
Special considerations		
Nasogastric intubation		
Gastric gavage		
Gastric lavage		
Colostomy irrigation		
Ostomy care		
Patient education		
Rehabilitation patterns		
Community resources		
Clinical experience		
Nursing the Patient with Genito-Urinary Dysfunction II	VII	35 hrs.
Advanced conditions		
Glomerulonephritis		
Renal failure		
Dialysis and transplants		
Mastectomy		
Prostate conditions		
Hypertrophy		
Cancer		
Medical and surgical management		
Causes and symptoms		
Diagnostic procedures		
Non-surgical intervention		
Nursing considerations		
Chemotherapy		
Nutritional needs		
Physical care		
Psychosocial aspects		
Special nursing procedures		
Convalescent care		
Community resources		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Patient education		
Clinical experience		
Nursing the Patient with Metabolic Imbalances II	VIII	30 hrs.
Thyroid dysfunction		
Causes and symptoms		
Diagnostic procedures		
Medical management		
Surgical intervention		
Nursing responsibilities		
Diet modifications		
Medication therapy		
Specific nursing care		
Preoperative		
Postoperative		
Psychosocial aspects		
Rehabilitative patterns		
Patient teaching		
Discharge instructions		
Home care		
Community resources		
Clinical experience		
Nursing the Patient with Problem Involving Disfigurement	IX	18 hrs.
Advanced conditions		
Skin disorders		
Burns		
Dermatology terminology		
Conditions		
Examples		
General skin care		
Bathing		
Special baths		
Specific treatments		

CONTENT	UNIT	RECOMMENDED TIME
Drug therapy		
Topical medications		
Corticosterords		
Systemic medications		
Psychosocial aspects		
Classification of burns		
Depth		
Percentage		
Nursing responsibilities		
Emergency care		
General first aid		
Hospitalization		
Burn centers		
Immediate care		
Breathing		
Fluid therapy		
Renal function		
Care of burns		
Medications		
Nutritional needs		
Emotional support		
Rehabilitative patterns		
Long-term care		
Emotional support		
Socioeconomic factors		
Patient education		
Community resources		
Clinical experience		
Specialized Nursing	MODULE B	210 hrs.
	I	140 hrs.
Specialty areas		
Emergency room		
Intensive care		
Recovery room		
Psychiatric concepts		
Home care		
Additional medication		

SCOPE AND SEQUENCE CHART (cont.)

CONTENT	UNIT	RECOMMENDED TIME
Administration		
Principles of leadership		
Nursing responsibilities		
Surgical patient follow through		
Nursing care plans		
Observations and assessment		
Emotional aspects		
Patient		
Family		
Complication preventive measures		
Medication administration		
Adaptation of nursing		
Techniques for home care		
Mental health promotion		
Nursing action priorities		
Team leader role		
Community resources		
Clinical experience		
<u>Nursing Opportunities</u>	II	70 hrs.
Health care trends		
Nursing trends		
Ethical and legal responsibilities		
Nursing organizations		
Alumni Association		
National League of Nursing		
National Association for Practical Nurse Education and Service		
National Federation of Licensed Practical Nursing		
American Nurses Association		
Functions		
Journals		

CONTENT	UNIT	RECOMMENDED TIME
Employment opportunities		
Sources and areas of employment		
Advantages		
Disadvantages		
Fringe benefits		
Job applications		
Letter		
Résumé		
Job interview		
Resignation procedures		
Personal and professional growth		
Promotion preparation		
Formal education continuation		
Health career ladders		
NLN test		
Evaluation conference		

FUNDAMENTALS OF HUMAN HEALTH CARE

1/2

Total : 30 hours
Theory: 28 hours
Conference/Study: 2 hours

FUNDAMENTALS OF HEALTH CARE-BASIC SCIENCES
UNIT I THE FIRST STEP

Introduction: In this unit, the student is introduced to the health care profession, the program, and the facilities for experience. The learning process is included with emphasis placed on student responsibility, study techniques, and pretesting for mathematics review. The student will also be informed of the responsibilities that must be accepted upon entering the health care profession: hospital attitudes, confidentiality, legal and ethical aspects interpersonal relationships.

Specific Objectives:

The student will be able to:

1. Adjust to the facilities and recognize lines of authority within the program.
2. Develop a pattern of behavior that will be condusive to learning.
3. Identify areas of weakness in mathematical skills.
4. Develop positive attitudes as they relate to personal appearance in school and the health care facility.
5. List the various types of health care facilities and the departments within.
6. Identify attitudes to initiate and maintain good interpersonal relationships.
7. Begin to interpret the ethical and legal responsibilities in administering health care.
8. Begin to recognize his/her role in the nurse-patient relationships.

Written

Fitch, Grace E. and Margaret A. Larson
Arithmetic Review and Drug Therapy for Practical/Vocational Nurses, Third Edition New York: Macmillin Company

Kron, Thora, Communication in Nursing
Second Edition, Philadelphia: W.B. Saunders Company, 1972

Audio-Visual

Filmstrip:
1. Effective Listening
2. Fractions and Decimals
3. Legal Implications in Nursing
4. Orientation
5. The Nurse (#2 of series)

Film: "Mrs Reynolds Needs a Nurse"

Written

Ross, Carmen F. Personal and Vocational Relationships in Practical Nursing, Fourth Edition, Philadelphia: J.B. Lippincott Company, 1975.

Stevens, Marion K. Personal and Vocational Relationships of the Practical Nurse, Second Edition, Philadelphia: W.B. Saunders, 1975.

Thompson, Ella M. and Caroline Bunker Rosdahl. Textbook of Basic Nursing, Second Edition Philadelphia: J.B. Lippincott Company, 1973.

Autio-Visual

Mimeographed materials
School physical facilities

Developing Core

The student will adjust more readily to the learning situation if given a good orientation to the health care profession, the program, and the facilities.

Objective 1: The student will be able to adjust to the facilities and recognize lines of authority within the program.

Student Learning Activities

1. Review student handbook.
2. List courses offered and instructions responsible for each.
3. Meet administrators and faculty members.
4. Make a diagram showing lines of authority as it relates to the student.
5. Tour the school facilities.
6. Identify emergency equipment.
7. Follow directions for fire drill.
8. Discuss the nursing as a whole.

115

Developing Core

Learning is development through experience, practice, and insight. This active process is self initiated and self motivated. The student will gain more if he/she knows how to participate in an educational setting.

Objective 2: The student will be able to develop a pattern of behavior that will be conducive to learning.

Objective 3: Identify areas of weakness in mathematical skills.

Student Learning Activities

1. Review the phases of the learning process.
2. Submit a sample outline from the textbook.
3. Practice problem solving: problem defined, collecting data and alternate solutions, draw conclusions.
4. Review the requirements for effective study.
5. Evaluate own study habits for areas of improvement.
6. Review the distributed SQ3R study technique.
7. Become oriented to the use of the library and available reference material.
8. Complete the arithmetic pre-test in textbook.
9. View film strip-"Fractions and Decimals."
10. Solve the practice problems in fractions and decimals-give as an outside assignment in textbook.
11. Read related material in assigned textbook.
12. Review Film strip-"Effective Listening."

Objective 3-continued

Remedial

Submit class notes to instructor for review.
Plan additional help for those students who fail the arithmetic pre-test.
a. assigned study periods
b. after class
c. additional outside assignments

Enrichment

Assign those students who performed well on the pre-test to offer additional help for those who failed.

Objective 4: The student will be able to develop positive attitudes as they relate to personal appearance in school and hospital.

Developing Core

Standards of cleanliness and appearance must by nature be higher for nurses than for people in most other professions; and every nurse should make an effort to achieve perfection in this area.

Student Learning Activities

1. Assess own appearance by using a class developed check list of personal qualities.
2. Identify the articles and clothing that make up the complete uniform.
3. Review the student handbook as to proper appearance for classroom and hospital.
4. Display the student cap and emblem and demonstrate how each is worn.

Developing Core

The health care system of today is a technological marvel. The average person is seldom aware of the many other responsibilities and lesser known activities that occur both within and outside of the institution.

The success of a student or a graduate depends on the proper interpretation of his/her roles and re-

Objective 4-continued

Remedial

Identify individual problems and refer to the counselor.

Objective 5: The student will be able to list the various types of health care facilities and the departments within.

Student Learning Activities

1. Classify the health care delivery system as to service and function.

2. List the hospital departments and the services rendered by each department.

3. Discuss some of the changes that have taken place in our health care delivery system. Over the past decade, ie Insurance, Admissions, length of hospital stay.

4. Read related material in assigned textbook.

5. View Film Strips-"Orientation."

6. Tour available health care facilities.

Objective 6: The student will be able to identify attitudes to initiate and maintain good interpersonal relationship.

1. List the personal qualities that are necessary to be a success in the health profession.

Objective 6-continued

Developing Core

sponsibilities within the health team.

Student Learning Activities

2. Give examples of hospital situations which reqire unquestionable integrity.

3. Demonstrate the proper method of answering the unit phone and follow up with practice.

4. Identify the members of the health team and discuss their working relationships.

5. Draw a diagram showing the lines of authority as they relate to the student.

6. Identify important aspects in establishing satisfactory interpersonal relationships within the health team.

7. Read related textbook material.

Remedial

Compare and contrast the nursing care patterns; functional, progressive, team, and specialized.

Enrichment

Refer to Kron "Communications in Nursing."

119

Objective 7: The student will be able to begin to interpret the ethical and legal responsibilities on administering health care.

Developing Core

The conduct and duties of the health care professional are controlled by a code of ethics and laws which act as a protection for both the nurse and the public.

Student Learning Activities

1. Identify types of information that must be kept in confidence.
2. List some examples of what might be called "shop talk."
3. Discuss why the basic rule of medical ethics is concerned with the preservation of life.
4. Review the Codes of Ethics set up by the NAPNES and the NFLPN.
5. List examples of negligent and malpractice acts as they relate to the administration of basic health care.
6. Read related material in textbook.
7. Review Film Strip "Legal Implications in Nursing."

Objective 8: The student will be able to begin to recognize her role in the Nurse-Patient relationship.

Patients have biological and cultural differences which make them individuals. They are not isolated individuals but members of families who have moved from environments of customary comforts to those of discomfort with fears and axieties.

1. Identify some of the common variations in culture that will be observed in patients.
2. List many of the anxieties and fears patients may experience with hospitalization.
3. Role play methods of extending common courtesies to patients by health care members.

Objective 8-continued

Student Learning Activities-cont.

4. Review Film Strip "Nurse-Patient Interaction", #2 The Nurse.

5. Review Film-"Mrs Reynolds Needs a Nurse."

6. Consider some personal experiences and evaluate how these experiences can be used to give more understanding to patients.

7. Discuss and review the list of patient's rights.

Enrichment

Refer to Kron "Communications in Nursing."

Evaluation:

1. The student will identify the various departments within the program and follow the proper lines of authority.

2. The student will list the requirements for establishing good study habits.

3. The student will be able to use the library and available reference material.

4. The student will begin to correct his/her weakness in mathematical skills.

5. The student will make a satisfactory appearance when in street clothes and complete uniform.

6. The student will identify, with examples, five common legal problems that may be encountered when administering health care.

121

Evaluation-continued

7. Given a code of ethics the student will describe what each principle means in personal life and in the health care profession.

8. The student will identify five ways of initiating and maintaining good interpersonal relationships.

9. The student will demonstrate that he/she can satisfactory establish a nurse-patient relationship.

10. The student will name eight facilities available for patient care.

11. Given a health care organization chart, the student will explain the lines of authority of the facility.

12. The student will receive a satisfactory grade on written examinations.

Total: 126 hours
Theory: 110 hours
Conference/Study: 16 hours

FUNDAMENTALS OF HEALTH CARE-BASIC SCIENCES
UNIT II THE HEALTHY INDIVIDUAL

Introduction: Good health is a state of homeostasis within the organism- a balance between man's body, mind and emotions. In order to help maintain this balance, a knowledge of the following is essential: man's basic needs, normal structure and functions of the organism, measures of health maintenance and normal nutrition.

Specific Objectives:

The student will be able to:

1. Identify the four basic needs of man and how these are met.
2. List the nine body systems and the major organs of each.
3. Describe the major functions of each body system.
4. Discuss the personal grooming habits needed to maintain a healthy organism.
5. Carry out basic first aid procedures.
6. Plan a well-balanced diet using the Basic Four Food Groups.

123

Written

Caldwell, Esther and Barbara R. Hegner, Health Assistant, Albany, New York: Delmar Publisher, 1973.

Chafee, Ellen E. and Esther M. Greisheimer, Basic Physiology and Anatomy, Third Edition Philadelphia: J.B. Lippincott Company, 1974

Ferris, Elvira B. and Ester G. Skelley, Body Structure and Functions, Albany, New York: Delmar Publishers, 1973.

Audio-Visual

ANATOMICAL MODELS
FILMS:
Microorganisms That Cause Disease-M.P. 450.6
FILMSTRIPS (TRAINEX)
Cardiovascular System
Digestive System
Drug Dependency-Narcotics, Analgesics
Muscular System
Nervous System
Respiratory System
Skeletal Systems

Written

Hasler, Doris and Norman B. Hasler, Personal, Home, and Community Health, New York: Macmillan Company, 1967.

Hasler, Doris, The Practical/Vocational Nurse and Today's Family, New York: Macmillan Company, 1972.

Jodois, Janet. Personal Care of Patients-A Text for Health Assistants. Philadelphia: W.B. Saunders, 1970.

The American National Red Cross. First Aid, Fifth Edition, Garden City New Jersey: Doubleday and company, Inc.

Thompson, Ella M. and Caroline Bunker Rosdahl. Textbook of Basic Nursing, Second Edition, Philadelphia: J.B. Lippincott Company, 1973.

Townsend, Carolyn E. Nutrition and Diet Modifications for the Nurse, Albany, New York: Delmar Publishers, 1972.

Williams, Sue Rodwell. Mowry's Basic Nutritional and Diet Therapy, Saint Louis: C.V. Mosby Company, 1975.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, and III, Philadelphia: W.B. Saunders Company, 1972.

Audio-Visual

Spiritual Needs of the Patient Film Strip-(Concept Media) Infection Control Series I.

124

Objective 1: The student will be able to identify the four basic needs of man and how these are met.

Developin Core

Physical needs, of food, water, oxygen, shelter, body covering, rest, sleep, and elimination are necessary for life.

Man has physical needs which must be met in order to live.

Emotional needs are also neccessary for a healthy organism.

Personality is unique for each person and it is constantly changing.

Habits make up a large portion of our personality.

How we handle tensions has a definite effect on our personality.

Student Learning Activities

1. List the basic needs of man.
2. Classify the physical needs in order of their importance beginning with the most important.
3. Define mental health.
4. Discuss if the need for self approval, acceptance and security is important for mental health.
5. Role play a person who is insecure, one who is not accepted by others, and one who does not have a positive self image.
6. Discuss how a person's insecurity can effect his self image.
7. Discuss why maturity is a sign of good mental health.
8. Define emotions and feelings and describe how you act when angry and happy.
9. List emotions that are considered negative and positive i.e., hate, fear, love.
10. Define personality and list the traits displayed in a pleasant personality.
11. Given a list of situations, the student will identify the defense mechanisms being used i.e., compensation, conversion, fantasy, identification, rationalization, sublimation, regression.

125

Objective 1-continued

Developing Core

Man is by nature a social being. These social needs are met through membership in groups such as the family, peer groups, and the community.

The family is the most basic source of meeting one's social needs.

The peer group also is important in socialization of the individual.

The community also meets the socialization needs of individuals. In order to do this, the community must be a healthy one.

The source of disease within a community is actually some form of microorganism.

126

Student Learning Activities

12. Define the word habit and discuss methods used to break bad habits and establish good habits.

13. Discuss some physical symptoms that a person may experience when he is upset or concerned about something.

14. In groups of four share with each other how you handle stress.

15. Beginning with the family, list social groups to which the student belongs.

16. Define the family and its developmental tasks i.e., supplying physical needs, bearing children, guidings.

17. Discuss the types of families that have evolved through the ages i.e., paternalistic, materialistic, democratic.

18. Compare and contrast via discussion the family of yesterday and the family of today.

19. Identify the effects that women's lib. has had on the family unit.

20. Discuss the stages of the family life cycle including advantages and disadvantages of each stage, the possible expenses of each stage and a person's individual reactions to each stage.

Enrichment

Discuss Maslow's "Hierachy of Needs"

Objective 1-continued

Student Learning Activities

21. In a panel discussion discuss problems that are facing the family today.

22. Discuss the peer group and how they can affect a person's behavior.

23. Compare and contrast the influences exerted upon an individual through the family and through the peer groups.

24. Demonstrate how early peer group exposure is important in later interrelationships with fellow students and co-workers.

25. Discuss methods of communication and how these can be achieved.

26. Discuss how a healthy community is needed to effectively contribute to the social needs of a group.

27. Direct student to read related material in textbook.

28. Define a microorganism and list its characteristics

29. Differentiate between pathogenic and nonpathogenic microorganisms. Give three examples of each.

30. Discuss the factors needed for the growth of microbes.

31. Define antiseptic and disinfectant. Give three examples of each.

Objective 1-continued

Developing Core

In order to maintain a healthy community, various governmental agencies are concerned specifically with the control of pathogenic micro-organisms.

Voluntary organizations provide educaional and special services to community members.

Student Learning Activities

32. Classify the microogranisms into protozoa, fungi, bacteria, and viruses and give an example of each.

33. Draw a picture depicting the three groups of bacteria.

34. Describe the methods used to kill or inhibit bacterial growth.

35. Explain how to disinfect thermometers, bandages, and scissors.

36. Prepare a list of ways in which bacterial growth can be inhibited in the home and in the community.

37. Define a communicable disease and prepare a chart listing the means of spread and the methods of prevention of the common communicable diseases.

38. View the film Microoganisms that Cause Disease. MP 450.6

39. Identify portals of entry and exit of bacteria.

40. View the Filmstrip on Infection Control.

41. Student will read related material in textbook on community health.

42. List the governmental agencies that help to control or prevent the spread of disease; describe some of their activities.

Objective 1-continued

Developing Core

Pollutants have adversely affected the lives of many community members. It is, therefore, important to recognize some of the major pollutants and what the average citizen can do about them.

Every individual has some basic philosophical or spirtual needs. These beliefs must be recognized as an integral part of man.

Student Learning Activities

43. Invite a Public Health Inspector to discuss the department's responsibilities regarding inspection of food, sewage and waste disposal, and housing inspection.

44. List four voluntary health agencies and the roles they play in community health.

45. Identify some common pollutants, what the ordinary citizen can do. and the industries and governmental agencies established to control these pollutants.

46. Describe how man's spiritual needs affect his total being.

47. Discuss your feelings about euthanasia. Should terminally ill patients be permitted to die with dignity?

48. View the filmstrip on the spiritual needs of the patient.

49. Discuss the right of every person to observe his/her own religious beliefs.

Enrichment

Do a research paper on "Typhoid Mary."

129

Objective 2: The student will be able to list the nine body systems and the major organs of each.

Objective 3: The student will be able to describe the major functions of each body system.

Developing Core

The body is divided into dorsal, ventral, cranial, thoracic, abdominal, and pelvic cavities.

A knowledge of body directions is important in order to describe the location of the organs.

Another method of dividing the body is into planes.

The basis for all other structures within the human body is the cell. It is important to know the properties of all cells in order to study the relationship between all body structures and functions.

Cells which are grouped together according to their function are known as tissue.

Membranes are sheets of tissue with specialized functions.

Student Learning Activities

1. Using the torso model, locate the various body cavities and identify the principle organs found in each cavity.
2. List the body directions and compare one direction to its corresponding opposite.
3. Locate principal organs and classify them according to body direction.
4. Name and locate the body planes.
5. Using the torso model identify the body planes.
6. Read the chapter Texbook of Basic Nursing.
7. Diagram the cell and label the structures found within the cells.
8. List and discuss the major properties of all living cells.
9. Describe the types of body tissue and the function of each.
10. Identify the two basic types of membranes.
11. List the two types of epithelial membranes and the two types of connective tissue membrane.

Objective 3-continued

Developing Core	Student Learning Activities
The organs of the body are formed from tissues and membranes and perform a definite function.	12. Discuss the function of the various types of tissue.
Groups of organs form systems which specialize in carrying out a particular function within the body.	13. Discuss how tissues and membranes form organs.
	14. List some of the major organs and the various types of tissue that make up that organ.
	15. Using the torso model or chart, identify as many organs as possible and discuss their functions.
The skin or integumentary system is the largest organ within the body.	16. Identify the nine body systems.
	17. List the major functions of each system.
	18. Using a torso model or chart identify the organs within each system.
	19. Read related material in textbook.
	20. Discuss how the skin performs its basic functions of protection, excretion, and temperature.
	21. Draw a diagram of the skin and label the parts. Include a sweat gland and a hair follicle.
	22. Discuss why it is important to prevent injury to the skin.
	23. Explain why hair, nails, sebaceous glands, and sweat glands are included in the integumentary system.

131

Objective 3-continued

Developing Core	Student Learning Activities
The musculo-skeletal system offers the body form and movement.	24. Demonstrate how activities regulate body temperature. Discuss the role skin plays.
The skeleton offers support, gives shape, protects vital organs, and anchors the muscles.	25. Explain the major functions of the skeletal system.
The joints allow for changes in body position.	26. Using a skeletal model, locate the major bones of the body: skull, mandible, maxilla, clavicle, scopula, ribs, humerus, pelvis, vertebrae, femur, tibia, fibula, phalanges).
Muscles are needed for movement.	27. Classify the major bones into categories of long, short, flat and irregular.
	28. Locate a bone and identify the organ or organs protected by the bone.
	29. View the flimstrip on the skeletal system.
	30. List the three kinds of joints and give an example of each.
	31. Identify some types of movable joints and give examples of each.
	32. Using a skeletal model point out as many bones and joints as possible within a certain period of time.
	33. Differentiate between cartilage and ligaments.
	34. Using the skeletal model or a fellow student, demonstrate flexion, extension, abduction, adduction, circumduction, rotation, pronation, supination, inversion, eversion, protraction and retraction.

Objective 3-continued

Developing Core

Tendons are also responsible for movement of the bones.

As with all living things, man needs food to survive. The gastro-intestinal system changes food into energy through digestion.

Student Learning Activities

35. Read the related material on the musculoskeletal system in the textbook.

36. Describe types of muscle and give and example of each: skeletal, smooth, cardiac.

37. Distinguish between voluntary and involuntary muscles.

38. Using a class chart identify the major muscles: trapezius, latissimus dorsi, gluteus maximus, hamstring group, biceps, triceps, deltoid, diaphram, anal sphincter.

39. Discuss the special characteristics of contractility and extensibility.

40. Classify the major muscles as abductors, adductors, levators, depressors, flexors, extensors, rotators, and sphincters.

41. Recognize by flexing and extending an arm or a leg how muscles work in pairs and opposite to each other.

42. View Trainex #28 (Muscular System).

43. Locate the calf muscle and slowly move hand toward ankle. The Achilles tendon can be felt as a tough, ropelike fiber.

44. Read related material in textbook.

45. Define the following terms: enzyme, bolus, epiglottis, peristalsis, feces, bile.

Objective 3-continued

Developing Core	Student Learning Activities
The circulatory system is responsible for taking oxygen and nourishment to all cells and removing waste products.	46. Using the torso model identify the major structures of the gastro-intestinal tract. (Mouth, teeth, tongue, pharynx, esophagus, stomach, small intestine, large intestine, anus)
	47. Discuss what happens to the foods as they pass through the various structures.
	48. Using the torso model identify the accessory organs (liver, gallbladder, pancreas) and discuss their function.
	49. Trace a piece of food through the digestive system.
	50. Describe the normal color and consistency of stool.
	51. View Trainex #28 (Digestive System).
	52. Analyze what might happen within the gastro-intestinal system if there has been an emotional upset before eating.
	53. Trace a piece of meat with some fat on it through the digestive system. (Include enzyme actions)
The heart acts as a double pump.	54. Examine wall charts that depict the heart and blood vessels.
	55. Read "The Circulatory System" in textbook.
	56. Using a heart model locate and name the four sections of the heart.

Objective 3-continued

Developing Core

Food, oxygen, and waste products are transported to every living cell in the body via the blood vessels.

Arteries, veins, and capillaries are the main types of blood vessels.

Pulse and blood pressure are directly related to the blood vessels.

Blood is responsible for carrying food and oxygen to the cells and carrying waste products away from the cells.

Student Learning Activities

57. Trace the flow of blood through the right side of the heart to the lungs and then trace the flow of blood through the left side of the heart. (Use of the names of the valves is necessary)

58. Explain how the heart acts as a double pump.

59. View Trainex #28 (The Cardiovascular System)

60. List the types of blood vessels and the functions.

61. Discuss why the arteries are depicted in pictures as red and why the veins are depicted as blue.

62. Make a drawing showing how blood flows from the arteries to the capillaries and to the veins.

63. Describe the differences in structure of arteries and veins.

64. Practice taking the pulse of a fellow student.

65. Take pulse of a fellow student after they have run in place for 30 seconds.

66. Practice taking another student's blood pressure.

67. Explain the relationship of pulse and blood pressure to the blood vessels.

68. Describe the function of the blood.

69. List the four types of blood cells and the main function of each.

135

Objective 3-continued

Developing Core

The chief function of the lymphatic system is filtration. Another function is production of lymphotes and monocytes.

The organs of the respiratory stem bring oxygen into the body and remove carbon dioxide.

Student Learning Activities

70. Identify the four blood types and determine which is the universal donor and which is the universal recipient.

71. Discuss the parts of the blood that aid in fighting infection.

72. List the basic structures and functions of the lymphatic systems.

73. Using a torso model or wall chart point out the major organs of the respiratory system (nose, pharynx, larynx, trachea, bronchi, alveoli, lungs).

74. Discuss the function of the respiratory center.

75. Trace the passage of air through the organs of the respiratory system.

76. Differentiate between internal and external respiration.

77. Practice counting the respirations of a fellow student.

78. Explain the relationship between the circulatory and respiratory systems.

79. View Trainex #28 (The Respiratory System).

Objective 3-continued

Developing Core

The urinary system filters wastes from the blood.

The menstrual cycle occurs about every twenty-eight days and is brought about by changes in the hormonal levels in the female.

Student Learning Activities

80. Read related material in Thompson.

81. Identify the major structure of the urinary system (kidneys, ureters, urinary bladder, urethra, urinary meatus) by using a torso model or a wall chart.

82. Discuss the main function of the urinary system.

83. Explain the normal color of urine.

84. Describe the composition of normal urine.

85. Discuss the function of each structure within the urinary systerm.

86. Compare and contrast the structure of the male and female reproductive systems according to their functions.

87. Discuss the menstrual cycle and what causes it to occur.

88. View a diagram showing the physiological changes that occur during the twenty-eight day cycle.

89. Explain the hormonal levels and their changes with the menstrual cycle by using a chart.

90. Set up a calendar depicting the first day of menstruation, the next expected menstrual period, and the expected time of ovulation.

Objective 3-continued

Developing Core

The nervous system directs all body activities; it receives stimuli and sends messages by means of a network of nerve cells.

Student Learning Activities

91. Read chapter in text on "The Nervous System."

92. Identify the major structure of the nervous system (brain, spinal cord, nerves) by means of a wall chart.

93. Describe the functions of the nervous system.

94. Draw and label a nerve cell.

95. Differentiate between the three types of nerve cells. (Sensory, motor, connecting)

96. Give some examples of reflex acts.

97. Trace the pathway of a stimulus (right arm is itchy).

98. Make a chart showing the subdivisions of the Autonomic Nervous System; the sympathetic and the parasympathetic and list as many examples as possible.

99. List the three divisions of the brain (cerebrum, cerebellum, medulla) and the function of each.

100. Draw a diagram of the brain; include the three divisions of the brain, the lobes, and the hemispheres.

101. View Trainex #28-"The Nervous System".

102. Describe the meninges and their function.

103. Explain what the cerebrospinal fluid is and what its function is.

Objective 3-continued

Student Learning Activities-cont.

104. Identify the peripheral nervous system.

Enrichment

Research some basic religious philosophies and report to the class.

Have one student mention a body organ and have another student identify the body cavity in which it is found and the body direction.

Draw a bone and label its parts.

Diagram the types of bone fractures.

Research a bone disease or condition, discussing the cause, treatment, and preventive measures.

Identify the principle bood vessels of the body.

Review technique of taking pulse or blood pressure and practice.

Objective 3-continued

Enrichment-continued

View Trainex on Blood Pressure.

Explain some laboratory tests that might be done on urine sample.

Discuss the signs and symptoms of veneral disease, methods of treatment, and the emotional impact it might have on an individual.

Objective 4: The student will be able to disucss the personal grooming habits needed to maintain a healthy body.

Developing Core

Prevention of disease and maintenance of a healthy body should be the primary concern of all people.

In order to maintain a healthy body there are a number of measures that should be observed. Correct body posture and correct body mechanics prevents many problems to the musculo-skeletal system.

The feet which are so important for mobility are probably one of the most neglected structures.

A person only notices his feet when they are hurting. It is essential to take care of the feet in order to maintain painless mobility.

Developing proper eating habits is also important in health maintenance.

Student Learning Activities

1. Demonstrate correct standing, setting, and walking posture (shoulders pulled back, abdomen tucked in, knees not crossed).
2. Discuss what problems can be caused by not observing correct posture.
3. Discuss the importance that exercise plays in good body posture and in the maintenance of a healthy body.
4. Explain how good posture can affect one's personality.
5. Demonstrate the proper way to lift a heavy object.
6. Explain why it is easier to push or pull an object it is to lift it.
7. Demonstrate proper foot care-include trimming of nails, care of skin.
8. Explain what shoes would be proper and why. Also explain why proper fitting is important.
9. Describe arch problems and what could be done to alleviate them.
10. Discuss the saying "When your feet hurt, you hurt all over."

141

Objective 4-continued

Developing Core

Care of the gums and teeth is necessary to maintain a healthy body.

Personal hygiene measures are based on good health habits.

An attractive and healthful appearance can be maintained by good skin care.

Student Learning Activities

11. Keep a record of everything that you consume during a twenty-four hour period.

12. Evaluate your food record to determine if you are eating sensibly.

13. Demonstrate the proper method of brushing the teeth.

14. Explain the terms caries and pyorrhea and what can be done to prevent them.

15. Relate how diet can effect the teeth.

16. Debate whether fluoridation is the best method of preventing caries.

17. Discuss what you should consider when selecting a dentifrice and list them.

18. List some causes of bad breath and methods of prevention.

19. Explain what can be done to prevent body odor.

20. List examples for the following statments:
    (1) You should wash your hands before...
    (2) You should wash your hands after...

21. Demonstrate nail care and explain why it is an important aspect of personal hygiene.

Objective 4-continued

Developing Core	Student Learning Activities
Particular attention must be given to the skin care of adolescents and the elderly.	22. Make up a skin care routine for an adolescent with an oily complexion.
	23. Differentiate between a pimple, blackhead, and cyst.
	24. Form a panel to discuss the psychological effects of acne in the adolescent.
	25. Discuss what modifications in a skin care routine are needed for an elderly person.
Hair care contributes to the well-groomed appearance of an individual and to his feeling of well-being.	26. Discuss how you feel about an individual who has dirty, greasy hair. How might that person feel about himself?
	27. Define dandruff and list some methods of treatment.
	28. Give examples of hair and scalp problems that you feel should be seen by a doctor.
Elimination is another important aspect of personal hygiene.	29. Define terms elimination, urine voiding, micturition, bowel movement, feces, stool, constipation, diarrhea.
	30. Relate how constipation can affect a person's personality and discuss ways of correcting the problem.
	31. Discuss some common methods of treating diarrhea.
	32. Give some signs or symptoms of possible problems within the urinary system.

Objective 4-continued

Developing Core	Student Learning Activities
Menstruation is a normal occurrence in the female. There is no need for special precautions except to pay particular attention to personal cleanliness.	33. Explain why a person should have an adequate fluid intake.
	34. Define dysmenorrhea, amenorrhea, menses, gynecologist.
	35. Review the female anatomy.
	36. List some lay terms that are used to refer to menstruation and discuss their significance. (i.e. "The Curse")
	37. Discuss the importance of cleanliness especially during menstruation.
	38. Debate whether moodiness before menstruation is actually caused by the menstrual cycle.
	39. Explain what happens to the uterus during the menstrual cycle.
	40. Discuss common methods that might be used to relieve menstrual cramps.
	41. List some menstrual irregularities in which female should consult her gynecologist.
The eyes are extremely sensitive organs and medical treatment should be sought at the first sign of difficulty.	42. Differentiate between ophthalmologist, optician, optometrist, and oculist.
	43. Form a panel and discuss what eyestrain is and how it can be prevented.

Objective 4-continued

Developing Core	Student Learning Activities
All work and no play does not contribute to the overall health of the individual.	44. List ways in which a person can prevent eye injuries.
	45. Demonstrate the various methods used to remove a foreign body from the eye.
	46. Debate whether a person should have periodic eye examinations or wait until he has signs of vision problems.
	47. Describe some warning signs of eye problems.
	48. Decide if sunglasses are useful and why.
Addicting substances cause physical dependence and can lead to bodily harm.	49. Discuss ways in which nervous and physical tensions and mental fatigue can be relieved by engaging in some form of recreation.
	50. Engage in some form of recreation after class and determine how you feel after the activity.
	51. Differentiate between addiction and habits.
	52. Set up four panel discussions with each group selecting one of the following topics: drugs, alcohol, tobacco, coffee or tea, and discuss the effects of the substance on the body and the withdrawal symptoms if any.

145

Objective 5: The student will be able to carry out basic first aid procedures.

Developing Core

Another phase of maintaining a healthy body includes knowledge of simple first aid procedures.

Most accidents can be prevented.

Lacerations and abrasions are some of the most common accidents.

In order to control severe bleeding it is important to know where to apply pressure.

Shock might be the result of a severe loss of blood.

Fainting is another common occurrence.

Recognition and first aid treatment of fractures is important to prevent further damage.

It is essential to correctly treat burns immediately in order to prevent infection.

Student Learning Activities

1. Form a panel discussion and discuss the saying "An ounce of prevention is worth a pound of cure."
2. List some of the safety hazards within the home and outside of the home.
3. Differentiate between an abrasion, laceration, incision, avulsion.
4. Describe first aid treatment for each.
5. Point out the pressure points that are used to stop bleeding.
6. Demonstrate the correct method of applying pressure to stop bleeding.
7. Describe what happens to the body when it goes into shock and discuss the first aid measures. (Position and warmth)
8. Explain what fainting is and the first aid treatment.
9. Define fracture and its types (simple, compound, comminuted).
10. Describe the symptoms of a fracture.
11. Discuss why a fracture should be immobilized. Practice applying a sling to a fellow student.

Objective 5-continued

Developing Core

Poisoning is a medical problem in which immediate first aid care is imperative.

Just as a car needs periodic inspections to spot potential problems, so does the human body. The physical examination is the most effective method of spotting potential health problems.

Student Learning Activities

12. Draw diagrams of the types of fractures.

13. Distinguish between a first degree, a second degree, and a third degree burn.

14. Explain the immediate first aid treatment.

15. Form a panel and discuss the emergency treatment for ingestion of a poison.

16. Given a list of poisonous substances, determine when vomiting should be induced and when it should not be.

17. Correctly identify the instruments commonly used by a physician during a physical examination. (Ophthalmoscope, otoscope, percussion hammer, tongue depressor, stethoscope, sphygmomanometer, vaginal speculum, nasal speculum, and proctoscope).

18. Describe what should occur during a physical examination.

19. Using the Chase doll practice positioning and draping used during a physical examination.

20. List the common diagnostic tests usually done during a physical examination. (Urinalysis, chest x-ray, blood test, and EKG).

21. List some of the specialists in the medical profession (gynecologist, protologist, urologist, orthopedic surgeon, neurologist, dermatologist).

147

Objective 6: The student will be able to plan a well-balanced diet using the Basic Four Food Groups.

Developing Core

Good nutrition practices are necessary for maintenance of bodily functions.

Physical appearance and mental outlook reflect, in part, the nutrition habits of the individual.

The Basic Four Food Groups and the caloric requirements are two means of determining an individual's nutritional requirements.

A knowledge of the anatomy and physiology is important before studying the enzymes and their action.

In order to get the necessary daily nutrients, it is important to plan menus.

Student Learning Activities

1. Read related textbook material.
2. Discuss the meaning of nutrition.
3. List ten signs of good nutrition and ten signs of poor nutrition.
4. Classify a list of foods according to the Basic Four Food Groups.
5. List the six basic nutrients, the sources and function of each.
6. Identify some deficiency diseases and what could be done to correct it.
7. Using a calorie table, determine the caloric values of a list of foods.
8. Debate whether food has psychological importance or not.
9. Review the major digestive organs and their function.
10. Identify enzymes and their purpose in the digestive process.
11. List some factors that can affect digestion.
12. Debate whether it is necessary to plan menus.

Objective 6-continued

Developing Core	Student Learning Activities
Knowledge of correct food preparation and storage is helpful in preventing unnecessary loss of valuable nutrients.	13. Evaluate some sample menus for nutrient content.
	14. Form a panel discussing factors that affect food choice. (Values)
Inspections of foods and food preparation plans protect the consumer from disease and from attacks of food poisoning.	15. Drawing from personal experience within their families, have students relate the difficulties in changing food habits.
	16. Review the common household measurements.
Foods must be adopted for family members of various ages.	17. Plan menus to feed family of four for three days spending $5 per day.
	18. List the methods of storing food.
	19. Identify some basic principles of cooking food.
	20. Each student will bring in and share with the class a recipe for a simply prepared nutritious food.
	21. List the agencies that are responsible for inspecting and protecting food supplies.
	22. Form a panel to discuss the sanitation principles in preparing and storing food.
	23. Discuss the major factor that lead to food poisoning.
	24. Discuss the diets for people of various age groups.

149

Objective 6-continued

Student Learning Activities

25. Role play a family with members of various age ranges. (Include an infant, a toddler, a school age child, an adolescent, and a grandparent)

26. Describe various meal patterns.

Evaluation:

1. The student will identify the bour basic needs of all people and how these needs are met.
2. The student will recognize some of the common defense mechanisms used by all people.
3. The student will explain the various types of families, how the family has changed through the ages, the stages that occur within the family and the individual's reaction to each stage.
4. The student will list some of the governmental agencies that help to control the speard of disease.
5. The student will explain the difference between pathogenic and nonpathogenic bacteria.
6. The student will classify fifteen substances as antiseptics or disinfectants.
7. The student will identify portals of entry and portals of exit of bacteria.
8. The student will demonstrate on a model how the body is divided into cavities, planes, and body directions.
9. The student will identify the major properties of all living cells.
10. The student will explain the relationship between cells, tissues, membranes, organs, and systems.

Objective 6-continued

Evaluation-cont.

11. The student will identify the nine body systems and the major organs of each.
12. The student will describe the major functions of each body system.
13. The student will identify six or more health maintenance factors and how these can be carried out.
14. The student will carry out basic first aid procedures.
15. The student will correctly use household measures.
16. The student will evaluate a meal for nutritional and caloric content.
17. The student will explain the diet modifications necessary for the various age ranges.
18. The student will take periodic examinations with a proficiency of 70% or better.

151

Total: 15 hours
Theory: 13 hours
Conference/Study: 2 hours

FUNDAMENTALS OF HEALTH CARE-BASIC SCIENCES
UNIT III THE NATURAL PHENOMENON OF ADVANCING AGE

Introduction: This unit deals with the aspects of natural aging and it gives emphasis to the increasing health, social, and emotional needs of the individual elderly person.

Specific Objectives:

The student will be able to:

1. Recognize the significance for studying the aging process and define related terminology.
2. List the characteristics an individual develops as he/she reaches advanced age.
3. Begin to understand the mental and emotional needs of the elderly.
4. Describe the changes that have taken place in the family's relationship with its elderly members.
5. Demonstrate his/her ability in providing for the general hygiene of the elderly.
6. Identify the problems faced by the senior citizens of today's society.
7. Identify the characteristics of a good nursing home.
8. Define his/her role in assisting the elderly individual to cope with impending death.

Written

Caldwell, Ester and Hegner, Barbara. Geriatrics, Albany, New York: Delmar Publishers, 1975.

Hassler, Doris. The Practical/Vocational Nurse and Today's Family, New York, New York: The MacMillian Company, 1972.

Stevens Marion Keith. Geriatric Nursing for Practical Nurses, Philadelphia: W.B. Saunders Company, 1965.

Thompson, Ella M., and Rosdahl, Caroline B. Texbook of Basic Nursing, ed. Philadelphia: J.B. Lippincott, 1973.

152

Developing Core

Aging is a natural, progressive process beginning at birth. It is an inevitable, universally shared experience.

153

Developing Core

In the natural process aging, there are changes in both physical appearance and functional efficiency.

The emotional needs for all humans are common regardless of age. The methods of obtaining satisfact-

Objective 1: The student will be able to recognize the significance for studying the aging process and define related terminology.

Student Learning Activities

1. Define terminology distributed: aging, senility, geriatrics and gerontology.
2. Identify the periods of life from infancy to old age.
3. Write a short paragraph on what "old" really means.
4. Compare the life expectancy today with the period before 1900.
5. Working in groups, list some of the people who have made major contributions to society in their later years.
6. Read related material in textbook.

Objective 2: The student will be able to list the characteristic an individual develops as he/she reaches advanced age.

Objective 3: The student will be able to begin to understand the mental and emotional needs of the elderly.

Student Learning Activities

1. Observe a series of pictures or films of elderly people and list the signs of natural aging that can be identified.
2. Complete a chart indicating the systemic changes in advancing age.
3. Discuss the complications that may occur with these systemic changes

Objective 3-continued

Developing Core	Student Learning Activities
ion and gratification of these needs, however, are narrowed greatly for older people.	4. Role play an elderly teacher who is admitted to a home for the aged and a young, disrespectful practical nurse. 5. Describe three circumstances which may cause the elderly to lose self-esteem. 6. Relate the personality traits of the elderly to the problems in adjusting emotionally to aging. 7. Read related material in textbook.
Responsibilities and life roles are altered as people grow older. A sense of security is provided for role changes in a healthy family relationship and the need for a satisfying family relationship continues to be important, regardless of age.	Objective 4: The student will be able to describe the changes that have taken place in the family's relationship with its elderly members. 1. List the four periods of crises in th middle years. 2. Define the term "role" as it relates to family relationships. 3. Identify the role changes that occur as an individual gets older. 4. Contrast the attitude of today's family toward its senior members with that of the early 1900's. 5. Visit a home for the aged to gain experience in relating to older persons. 6. List the qualities needed for the health care professional to give adequate care to the elderly person. 7. Describe the feelings families experience when confronted with a health problem of an elderly member.

154

Developing Core

The ability to provide for ones personal needs is a necessary part of independent living. With advancing age, it may be difficult for the individual to meet these needs alone and the aging process itself may modify the methods used.

155

The majority of elderly persons prefer to live in familiar surroundings and remain self directed and self reliant for as long as possible. A crises occurs when the individual must give up this independence.

Objective 5: The student will be able to demonstrate his/her ability in providing for the general hygiene of the elderly.

Student Learning Activities

1. Assist in providing for the personal care of an elderly person.

2. Describe the skin care necessary for an elderly person and indicate how this differs from that of a younger person.

3. List some chronic illnesses that often begin in middle age and may be prevented or arrested by regular health consultation.

4. List the nutritional problems that may beset an elderly person and develop a plan for solving these problems.

5. Produce a safety chart. Indicate on the chart safety hazards of the elderly and infirmities of age which create such hazards.

Objective 6: The student will be able to identify the problems faced by the Senior Citizens of today's society.

1. Describe the various types of living facilities available to the elderly person.

2. In small groups, discuss the present day problems in housing that face the elderly.

3. List the nine Rights of the Senior Citizen from the While House Conference on Aging.

4. Name five activities which can help the elderly person feel needed.

5. Describe the recreational opportunities observed on the nursing home visits.

Objective 6-continued

Developing Core	Student Learning Activities
	6. List some of the problems faced by the individual at the time of retirement.
	7. Identify some of the considerations needed in planning for retirement. (Finances, etc.)
	8. In small groups, discuss the problems a sedentary life can create for the aged and offer some solutions to these problems.
	9. In small groups, discuss the need for rehabilitation in the elderly: social, physical, economic.
	Objective 7: The student will be able to identify the characteristic of a good nursing home.
A United Community Action is required to solve the major problems facing the elderly today. Provisions for adequate nursing home facilities is part of a Community Action program.	1. List the typical community facilities and services that are offered to the elderly.
	2. List the nursing homes that are available in your community.
	3. Identify the features to investigate when looking for a good nursing home.
	4. Discuss the factors that are helping to improve the standards of nursing homes.
	Objective 8: The student will be able to define his/her role in assisting the elderly individual to cope with impending death.
With a spouse gone and friends lost, the realization of death comes in to sharper focus.	1. Invite a clergy man to discuss his experiences with elderly people and their views of death.
	2. List the specific steps which may lead to the acceptance of terminal illness and death.

Objective 8-continued

Student Learning Activities-cont.

3. Discuss the attitude and role the health professional should assume when working with elderly patients who may be terminally ill.

Enrichment

Discuss some of the arguments given in favor of and against compulsory retirement.

Read Koeber-Ross "One Death and Dying".

Evaluation:

1. The student will define: aging, senescence, senility, geriatric, gerontology.
2. The student will list the systems changes that occur with aging.
3. The student will relate satisfactory with an elderly person.
4. The student will explain fully the role changes that occur with a senior member of a family.
5. The student will provide for the hygienic needs of an elderly patient.
6. The student will plan a diversional and recreational activity for an elderly person.
7. The student will list ten community facilities for the elderly.
8. The student will identify five major problems facing senior citizens today.
9. The student will list ten characteristics of a good nursing home.
10. The student will receive a satisfactory grade on written examinations.

157

Total: 30 hours
Theory: 26 hours
Conference/Theory: 4 hours

FUNDAMENTALS OF HEALTH CARE-BASIC SCIENCES
UNIT IV INTRODUCTION TO THE PROCESSES OF DISEASE

Introduction: This unit is designed to introduce the student to the processes of illness, deviations from normal, and common diagnostic procedures. Emphasis is also placed on the basic signs and symptoms of illness with simple related nursing measures.

Specific Objectives:

The student will be able to:

1. Identify the normal body's defenses against illness and disease.
2. Define and give examples of classifications of disease conditions with their related causes.
3. Follow the course a disease may take and describe the process of healing.
4. Classify symptoms and list the common ones to be observed.
5. Describe the simple nursing measures used to alleviate these symptoms.
6. Describe the common diagnostic procedures.

158

Written

Burke, Shirley R. Human Biology in Health and Disease, New York: John Wiley and Sons Inc., 1975.

Smith, Dorothy W., and Germain, Carol P. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ella M. and Rosdahl, Caroline B. Textbook of Basic Nursing, Second Edition, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Equipment for Demonstrations
Examples of Laboratory Requisitions
Mimeographed Material
Filmstrip: Concept Media
Nurse-Patient Interaction

Objective 1: The student will be able to identify the normal body's defenses against illness and disease.

Developing Core

The healthy body is a complex mechanism with its own built-in defenses against disease condition.

Student Learning Activities

1. Review the structure and function of the skin.
2. Identify areas that are protected by mucous membrane.
3. Review the lymphatic system.
4. Locate the origin of the leukocytes and discuss how they function as one of the body's defenses.
5. Define the term leukocytosis and leukopenia.
6. Define: immunity, antibody, antigen.
7. Discuss the antibody-antigen reaction.
8. Classify types of immunity: acquired, inherited, active, passive.
9. Read related textbook material.

Objective 2: The student will be able to define and give examples of classifications of disease conditions with their related causes.

The body as a complex machine is affected by many factors which may result in a disturbance of body function and change in body tissue.

1. Define illness, disease, and pathology.
2. Differentiate between an organic disease and a functional disorder.

Objective 2-continued

Developing Core

Student Learning Activities-cont.

3. Discuss the classification of diseases as to cause, system affected, and method acquired.

4. Define and give some examples of the following classifications: hereditary, congenital, infection, deficiency, metabolic, neoplastic, traumatic, occupational.

5. Define the term predisposing.

6. Discuss the five predisposing factors to disease:
   a. genetic
   b. deficiencies
   c. ignorance
   d. emotions
   e. inadequate protection

7. Divide the class into five groups and have each produce examples of these factors.

8. Read related textbook material.

Objective 3: The student will be able to follow the course a disease take and describe the process of healing.

The progression of a disease from onset will vary with disease, treatment, and individual. The repair or regeneration of tissue is an attempt by the body to return to a healthy state.

1. Define: acute, subacute, chronic, and granulation.

2. Using the common condition of bronchitis to illustrate how this may progress from acute to chronic.

3. List other common conditions that may progress from acute to chronic.

Objective 3-continued

Developing Core	Student Learning Activities
	4. Define inflammation and list the symptoms.
	5. Define: exudate, serum, fibrinous, purulent, suppuration, slough, ulcer.
	6. Compare the healing process of a simple wound with clean cut sharp edges (incised) to an irregular jagged wound. (lacerated)
	7. Differentiate the following types of scar tissue: cecatrix, adhesions, keloid.
	8. Read related textbook material.
Objective 4:	The student will be able to classify symptoms and list the common ones to be observed.
Objective 5:	The student will be able to describe the simple nursing measures used to alleviate these symptoms.
Objective 6:	The student will be able to describe the common diagnostic procedures.
Illness and disease conditions are manifested in a variety of ways. A few basic measures can be instituted in alleviating these discomforts.	1. Define objective and subjective signs and list some examples of each.
	2. Select several students to discuss the observations made on their assigned patients and classify them as either subjective or objective.

Objectives 4,5,6-continued

Student Learning Activities-cont.

3. List the common signs and symptoms to be observed and discuss the simple nursing measures used to alleviate these symptoms.

4. Role play a nurse-patient relationship dealing with acute abdominal pain, with emphasis placed on information needed.

5. Observe film strip-"Nurse and Patient Interaction." (#2)

6. Discuss the varied emotional and mental reactions to be observed: orientation, responsiveness.

7. Define: urinalysis, CBC differential, ECG chest x-ray, GI series.

8. Define the term diagnosis and discuss the purpose of these common procedures.

9. Read related textbook material.

Evaluation:

1. The student will list four means by which the body may defend itself against disease conditions.

2. The student will list eight classifications of disease conditions and give an example of each.

3. The student will define: acute, subacute, and chronic.

4. The student will define granulation and explain healing by first intention and healing by second intention.

Evaluation-continued

5. The student will recognize the common signs of disease conditions and apply simple nursing measures to alleviate these symptoms.

6. The student will explain the purposes of a urinalysis, CBC differential, ECG, chest x-ray, and GI series.

7. The student will receive a satisfactory grade on a written exam.

Total: 30 hours
Theory: 26 hours
Conference/Study: 4 hours

FUNDAMENTALS OF HEALTH CARE-BASIC SCIENCES
UNIT V PRINCIPLES OF PHARMACOLOGY

Introduction: This unit is designed to introduce the student to the basic principles for administering medications. The course includes the units of measurements, use and action of drugs, and the skills necessary for the preparation and administration of medications. The student will also be oriented to the common drug classifications and examples of each.

Specific Objectives;

The student will be able to:

1. Identify the metric, apothecaries, and household measurements as used in drug dosages, and calculate conversions within and between the systems.
2. Discuss the importance of and methods for establishing drug standards and control.
3. Explain the legal aspects involved in the administration of medications.
4. List the sources of drugs and types of preparations.
5. Recognize the various methods of drug administration and explain their purpose.
6. Define minimum, maximum, toxic, and lethal dose and discuss the factors that affect drug dosage.
7. Prepare a list of general purposes for which drugs are used.
8. Identify the various actions of drugs.
9. Accurately interpret a written order.
10. Classify drugs according to their actions, use, and type and discuss in detail data on the medications they are to administer.
11. Prepare, administer, and chart prescribed medication: oral, sublingual, subcutaneous, and intramuscular.

Written

Falconer, Mary W. et.al. The Drug, The Nurse the Patient, Edition five, Philadelphia: W.B. Saunders Company, 1974.

Audio-Visual

Equipment for Demonstrations

Film Strips:
Apothecary Measurement
Household Measurements
Metric System

164

Written

Fitch, Grace E. and Larson, Margaret A. Arithmetic Review and Drug Therapy for Practical/Vovational Nurses, Third Edition, New York: MacMillan Company.

Kozier, Barbara B. and DuGas, Beverly W. Fundamentals of Health Care, Philadelphia: W.B. Saunders Company, 1967.

Thompson, Ella M. and Rosdahl, Caroline B. Textbook of Basic Nursing, Second Edition, Philadelphia: J.B. Lippincott Company, 1973.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, and III, Philadelphia: W.B. Saunders Company, 1972.

125

Developing Core

Drugs are measured by both dry and liquid measures. Two systems are used-the metric and apothecaries system. In addition to these systems household measuring equivalents are sometimes used.

Objective 1: The student will be able to identify the metric, apothecaries, and household measurements as used in drug dosages, and calculate conversions within and between the systems.

Student Learning Activities

1. View film strips on metric, apothecaries, and household measurements.

2. Review the table listing metric, apothecaries, and household equivalents and compare them.

3. Observe demonstration for computing drug dosage using proportion method, and practice assigned problems.

4. Compute conversion problems within the metric system.

Objective 1-continued

Developing Core

A drug is any substance which by its chemical nature influences the structure of function of the living organism. Such a definition includes medications which are used in preventing diagnosing, treating diseases and restoring or maintaining normal functions.

Standards and controls are imperative. The regulation of the strength and purity of the drugs are essential to protect the public from the dangers of misues or adulteration.

Student Learning Activities

5. Compute conversion problems between the metric and apothecaries system.

6. Secure measuring equipment and practice measuring dry and liquid measures using the three systems.

7. Using medicine cards written with each of the three systems of measuring equivalents, practice measuring dry and liquid measures.

Objective 2: The student will be able to discuss the importance of and method for establishing drug standards and controls.

Objective 3: The student will be able to explain the legal aspects involved in the administration of medications:

Student Learning Activities

1. Name the two groups into which drugs may be classed.

2. List examples of the official and non-official publications.

3. Define: trade name, official or generic name.

4. Review the acts of legislation which control prepartion and use of drugs.

5. Interpret how these acts affect the administration of medications.

6. In small groups, discuss the individual responsibilities of those involved in administering and consuming drugs: M.D., pharmacist, nurse, patient.

Developing Core

Although drugs are prepared in pharmaceutical laboratories they are secured from organic or enorganic sources. The drug is prepared in the form the patient will use, often in the exact dose to be given.

The method of administration depends on the nature of the drug and the effect that is wanted.

In prescribing the dosage of any drug, the doctor always considers certain individual differences that are known to affect drug dosage.

Objective 4: The student will be able to list the sources of drugs and types of preparations.

Student Learning Activities

1. Investigate the organic sources and list the drugs obtained from plants and animals.

2. Define the term synthetic and give an example of a synthetic drug.

3. View the various types of drug preparations that are available and become familiar with terms used to describe them.

Objective 5: The student will be able to recognize the vaious methods of drug administration and explain their purpose.

Objective 6: The student will be able to define minimum, maximum, toxic, and lethal dose, and discuss the factors that affect drug dosage.

Student Learning Activities

1. Define posology.

2. Differentiate between local any systemic.

3. Identify those methods used for rapid absorption and slow adsorption.

4. Determine the best methods of drug administration to an unconscious patient.

5. Define minimum, maximum, toxic, and lethal dose.

6. Determine the differences in drug dosage: child and adult, oral medication and I.V., obese and thin patient, disposition, distribution, elimination.

Developing Core

Medications are used in preventing, diagnosing, treating diseases, and restoring or maintaing normal functions. Drugs act differently on different individuals but the action of most drugs can be predicted.

Medications are only given upon the order of the physician. An order should always include the name of the drug, the exact dosage, the route of administration, and the frequency of administration.

All medication orders include abbreviations and symbols and if the order is to be interpreted correctly the nurse must be familiar with these abbreviations and symbols.

Objective 7: The student will be able to prepare a list of general purposes for which drugs are used.

Objective 8: The student will be able to identify the various actions of drugs.

Student Learning Activities

1. Prepare a list indicating the purposes for which drugs are given and give an example of each purpose.

2. Prepare a chart showing the action of drugs according to location, expected results, and condition of patient.

3. Define the following terms and give examples:
   a. side effects
   b. idiosyncratic
   c. toxic
   d. cumulative
   e. antagonistic
   f. synergistic

Objective 9: The student will be able to accurately interpret a written order.

Student Learning Activities

1. Memorize the commonly used abbreviations and symbols.

2. Examine carefully the forms that will contain the written order: prescription, doctor's order sheet, kardex, and medicine card.

3. Compare the forms that are used in various hospitals.

4. Practice interpreting sample medication orders.

5. Differentiate between a self-terminating order and a standing order.

6. Name two types of drugs that are ordered on a self-term-inating basis: (narcotic and antibiotic).

Objective 9-continued

Developing Core

Student Learning Activities

7. List the parts of a prescription.

Objective 10: The student will be able to classify drugs according to their actions, use and type, and discuss in detail data on the medications they are to administer.

Drugs are classified according to type or particular action and according to the system of the body they affect.

For safe drug administration, the practical nurse must be knowledgeable on the actions of the drugs that are administered.

Student Learning Activities

1. Prepare a list of individual drugs and give information that is needed before administering the drugs.

2. Prepare a chart indicating drug classification, definition, and example.

3. Given a list of drugs, research these drugs using available reference material: P.D.R., hospital formulary etc.

4. Practice classifying drugs by naming them and the effect they have on the body.

5. Make a chart of commonly used drugs found in a personal medicine chest and classify them according to the type of medication they represent.

Objective 11: The student will be able to prepare, administer, and chart prescribed medication: oral, sublingual, subcutaneous and intramuscular.

Preparing and administering medications involves a given set of rules which have been set up to protect the patient and to protect the person preparing the medication from mistakes which

Student Learning Activities

1. Determine the five "rights" in giving medications.

2. Determine the methods or routes or administration in giving medications.

3. List the different forms of oral medications i.e.,

169

Objective 11-continued

Developing Core	Student Learning Activities
could have serious results.	special considerations with preparations such as cough medicines, unpleasant tasting medicines, and liquid acid or liquid iron preparations.
Oral administration of medicine is only one of many ways of giving drugs. Other methods include parenteral, local, rectal, vaginal, and sublingual.	4. Practice pouring oral medication solid and liquid, and identifying label three times.
	5. Role play a situation in which oral medications are given to a patient.
Some drugs, in order to be effective, must be given rectally, vaginally, or locally.	6. Observe a demonstration of administration of drugs given vaginally, rectally, and locally.
Parenteral medication can be administered in slightly different manners such as subcutaneously and intramuscularly.	7. Differentiate between the various methods of administering parenteral medication: intradermal, subcutaneous, intramuscular, and intravenous.
	8. Examine various needles and syringes and determine their use.
	9. Draw a needle and syringe and label its parts.
It is important to know what parts of the needle and syringe should not be touched in order to prevent transmission of microorganisms.	10. Identify the parts of the needle and syringe that should not be touched.
	11. Practice handling a sterile syringe taking care not to contaminate the parts that are to remain sterile.
	12. Recognize the various gauges of needles and when to use a particular size.
	13. Observe the various types of syringes: insulin, TB syringe, 3cc and 5cc.

Objective 11-continued

Developing Core

Subcutaneous injections are used when rapid action of a drug is desired, when a patient cannot take oral medications or when the gastric juices would change the action of a medication.

An intramuscular injection is introduced into a muscle, therefore, a longer needle is used.

To prevent introduction of an infection, the skin is cleansed with an antiseptic.

Student Learning Activities

14. Observe technique of drawing up medication from a vial and an ampule.

15. Using proper technique practice drawing up medication from a vial and ampule.

16. Practice charting medication on graphic sheet.

17. Determine when the subcutaneous route is used.

18. Draw a diagram of a person and indicate the areas when a subcutaneous injection is usually given.

19. List some factors that should be considered when selecting a site for subcutaneour injections.

20. Discuss when and why the intramuscular route is used.

21. Explain the various sites for intramuscular injections.

22. Practice selecting the sites for an intramuscular injection (upper outer quadrant, ventrogluteal site) on the Chase doll.

23. List important points when giving an intramuscular.

24. Discuss the dangers of intramuscular injections.

25. View a demonstration on preparing the skin before parenteral administration of medication.

26. In groups of two, practice cleansing the skin for an injection.

Objective 11-continued

Developing Core

As with any procedure there are certain safety factors that must be observed.

Before administering a medication, the nurse should know specific information about that particular drug.

Student Learning Activities

27. List some antiseptics that are commonly used.

28. Make a poster depicting some of the safety factors that should be observed.

29. In groups of four, list the safety factors that should be kept in mind when giving parenteral medicines and compare the list with other lists.

30. Identify the drug information that the nurse should know before administering a drug i.e., purpose, indications, contraindications, toxic reactions.

31. List the sources that are available in obtaining the drug information.

32. Using the available source, look up ten assigned drugs and list the drug data for each.

Evaluation:

1. The student will accurately identify the units of measurement in the metric and apothecaries system.
2. The student will by oral examination, convert within and between the measuring systems.
3. The student will accurately compute dosages by using proportion and solving for X.
4. The student will be tested by written and practical methods on how to accurately prepare, administer, and chart medications.
5. The student will be tested by written exam on related principles of pharmacology.
6. The student will accurately match twenty-five drug abbreviations with their meanings, in a given written test.
7. The student will accurately classify fifteen common drugs according to type and action in an oral or written test.
8. The student will accurately interpret an order.

Total: 114 hours
Principles and Practice: 44 hours
Clinical Experience: 70 hours

FUNDAMENTAL OF HEALTH CARE-SKILLS
UNIT VI

Introduction: A knowledge of basic skills is needed in order to meet the physical needs of the patient.

Specific Objectives:

The student will be able to:

1. Demonstrate correct handwashing technique.
2. Describe the general environmental needs of the patient such as medical asepsis and safety.
3. Recognize and practice good interpersonal skills in admitting a patient.
4. Accurately take temperature, pulse, respiration, and blood pressure.
5. Correctly make the four types of hospital beds using proper body mechanics and safety devices.
6. Properly position a patient.
7. Assist a patient with transfer activity using correct body mechanics.
8. Prepare a patient and his environment at mealtime.
9. Assist a patient at mealtime.
10. Properly feed a helpless patient and accurately measure and record fluid intake.
11. Correctly administer and remove a bedpan or urinal, properly cleanse after use, and accurately measure and record output.
12. Bathe a patient correctly.
13. Properly carry out personal hygiene measures for patients such as back care, oral hygiene, hair care, nail care, and catheter care.
14. Display some proficiency in basic observation skills.
15. Carry out active and passive range of motion exercises on patients.
16. Properly use safety devices on patient when needed.
17. Identify and practice meeting the basic needs of the chronically ill patient.
18. Demonstrate methods of adapting home equipment to meet the physical needs of patients in the home.

Written

Caldwell, Ester and Barbara R. Hegner.
Health Assistant, Albany New York:
Delmar Publishers, 1973.

Audio-Visual

Films "Medical Asepsis"
Filmstrips-Trainex
Admission, Transfer and Discharge (#2)

Written

Kozier, Barbara Blackwood and Beverly Witter Du Gas. Fundamentals of Patient Care, Philadelphia: W.B. Saunders Company, 1967.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Stevens, Carolyn B. Special Needs of Long-Term Patients, Philadelphia: J.B. Lippincott Company, 1974.

Thompson, Ella M. and Caroline Bunker Rosdahl. Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, and III, Philadelphia: W.B. Saunders Company, 1972.

Audio-Visual

Bed Bath (#1)
Blood Pressure (#1)
Bowel and Bladder Training
Feeding the Patient
Intake and Output
Lifting and Moving Patients
Medical Asepsis
Nursing Care During Intravenous Therapy
Observations and Charting
Occupied Bed Making
Personal Care in Long Term Illness
Positioning to Prevent Contractures
Range of Joint Motion Exercises
Temperature, Pulse, and Respiration
Urinary Care

Objective 1: The student will be able to demonstrate correct handwashing technique.

Objective 2: The student will be able to describe the general environmental needs of the patient, such as medical asepsis and safety.

Developing Core

Disease can be transmitted from person to person, from animal to person and from object to person. The practice of medical asepsis is important to prevent this spread of disease.

Student Learning Activities

1. List the four ways in which disease is spread and give examples of each.

2. Review the proper technique of handwashing and explain its purpose.

Objective 1, 2-continued

Developing Core	Student Learning Activities
Safety is another important aspect of patient care.	3. View trainex on Medical Asepsis. 4. Keeping the principles of medical asepsis in mind, list the methods and reasons for cleaning the patient's unit. (Daily damp dusting, etc.) 5. Identify safety factors that must be observed when caring for the patient and his unit. (Handwashing, use of side rails, etc.) 6. Role play a nurse who observes safety rules in caring for her patient. (Another student can be the patient) 7. Make a poster depicting safety factors to be observed when giving patient care.
	Objective 3: The student will be able to recognize and practice good interpersonal skills in admitting a patient to the hospital.
The first impression a patient gets upon admission can set the stage for his/her entire hospital stay. Upon admission, the patient is apprehensive and fearful; a friendly, calm manner on the part of the nurse does much to allay the patient's fears.	1. View Trainex on Admission, Transfer, and Discharge. 2. Role play a patient admission (one student acting as nurse and one acting as patient). 3. Role play an admission procedure using poor interpersonal relationships; role play the same admission procedure using good interpersonal relationships. 4. Practice balancing the scale. 5. Practice weighing and measuring ten fellow students.

175

Objective 3-continued

Developing Core	Student Learning Activities
For many procedures the height and weight of the patient are necessary in calculating dosages of medicine.	6. Chart the results of the height and weights on a graphic sheet. 7. Discuss why accurate height and weight of a patient is needed.

Objective 4: The student will be able to accurately take temperature, pulse, respiration, and blood pressure.

Developing Core	Student Learning Activities
The temperature, pulse and respirations make up the vital signs. Deviation in vital signs influence medical treatment and nursing care. Body temperature is the balance between the heat produced and heat lost by the body.	1. View trainex film on T.P.R. 2. Practice reading centigrade and Fahrenheit clinical thermometers. 3. Given a list of ten temperatures, draw diagrams depicting the temperature. 4. Practice taking oral temperatures on five students. 5. Practice taking an axillary temperature on another student. 6. Using the Chase doll view a demonstration of taking a rectal temperature and then return the demonstration. 7. List indications for using the oral, rectal, and axillary methods of taking temperatures. 8. Practice recording the temperatures on clinical sheets from a variety of hospitals.

Objective 4-continued

Developing Core

Pulse is the pressure felt against the wall of an artery as blood is forced through it by contraction of the heart.

Pulse is best felt at a superficial artery which can be compressed against a bone.

Respirations are closely related to the pulse and are usually taken together.

Student Learning Activities

9. Clean thermometers in the approved manner.

10. Observe a demonstration of taking the pulse at the radial site.

11. Practice taking the pulse of five other students. (Using various sites for one minute including apical)

12. Practice counting a fellow student's respirations for one minute.

13. Discuss whether people can actually control their respirations.

14. Demonstrate how the pulse and respiration are affected by exercise. (Have a student jump in place twenty times). Take pulse and respiration before and after.

15. Describe abnormalities in pulse and respiration.

16. List conditions which might be indicated by: rapid pulse and respiration, slow pulse and respiration.

17. View the trainex on Blood Pressure.

18. Distinguish between the systolic and diastolic pressures and list the normal ranges of each.

19. Practice reading the Blood Pressure manometer following a blackboard demonstration.

Objective 4-continued

Developing Core

The blood pressure is the force of blood against the arteries caused by contraction and relaxation of the heart.

The systolic pressure is the greatest pressure exerted by contraction of the heart. The diastolic is the least pressure exerted occurring during relaxation of the heart.

The patient's chart is a legal document.

Recorded and reported observations influence the physician's assessment and treatment of the patient.

Pertinent, accurate, descriptive, and legible notes are meaningful.

Medical record forms vary widely from institution to institution.

Student Learning Activities

20. Discuss and list factors which affect blood pressure.

21. Practice manipulation of air release valve by wrapping cuff around a rolled bath towel.

22. Take blood pressures on ten different students and record them on a clinical sheet.

23. Take blood pressure on a student "Patient" while he is lying down, sitting, and standing.

24. View trainex on "Observations and Charting".

25. Given a list of medical terms, prefixes, suffixes, and medical abbreviations, find the meaning of each.

26. Interpret meanings of a prepared list of medical terms from knowledge of the prefixes and suffixes.

27. Direct students to identify and define the medical terms from knowledge of the prefixes and suffixes.

28. Supervise practice of recording on graphic sheet, vital signs sheets, and nurses' notes (use descriptive charting format) from various local hospitals.

29. Observe samples of reminder sheets, assignment sheets, and kardex.

30. Provide students with information about patients, and have them practice using the reminder sheets.

Objective 4-continued

Developing Core	Student Learning Activities
	31. Observe the use of the Kardex and the assignment sheets.
	32. Given questions about hypothetical patients, practice using the Kardex to find the answer.
	33. Practice charting patient admission using descriptive method.

Objective 5: The student will be able to correctly make the various types of hospital beds, keeping good body mechanics and safety factors in mind.

Physical needs are the most basic needs of all individuals and patients have additional needs because of their illness.	1. Discuss the various types of hospital beds and their uses (electric, manual, Stryker, Circo-electric).
	2. Practice operating an electric and manual bed.
A well-made bed will do much to add to the comfort and well-being of the patient.	3. Explain the principles and safety factors related to bedmaking.
	4. Identify the various bedmaking methods (open, closed, anesthetic, occupied, modifications for special needs such as a bed cradle).
	5. View trainex or demonstration on Bedmaking.
	6. Return demonstrations of bedmaking, using principles of good body mechanics.
	7. Practice making a bed with some modifications. (Orthopedic bed, bed cradle)

Developing Core

Proper positioning prevents contractures, bed sores, and respiratory complications.

Proper use of the muscles used in lifting and moving the patients will minimize fatigue and prevent strain in the nurse.

Student Learning Activities

Objective 6: The student will be able to properly position a patient.

Objective 7: The student will be able to assist a patient with Transfer Activities using correct body Mechanics.

Student Learning Activities

1. View Trainex on Lifting and Moving Patients.
2. View Trainex "Transfer Activities and Ambulation".
3. View a demonstration of:
   a. Positioning a patient in side lying, back lying, and face lying positions.
   b. Assisting a patient to sit up in bed.
   c. Getting a patient out of bed into a chair.
   d. Transporting a patient from bed to carrier.
   e. Using assistive devices in positioning.
   f. Moving a patient up in bed.
   g. Assisting with ambulation.
4. Return the demonstration of above.
5. View Trainex "Positioning to Prevent Contractures".
6. Make hand rolls and trochanter rolls and demonstrate their use.

Objective 8: The student will be able to prepare a patient and his environment for mealtime.

Objective 9: The student will be able to assist a patient at mealtime.

Objective 10: The student will be able to properly feed a helpless patient and accurately measure and record fluid intake.

Objectives 8,9,10-continued

Developing Core

Nourishment is essential to building and repairing body tissues.

Mealtime should be a relaxed, cheerful, pleasant, experience.

A desire for independence is natural and shoud be encouraged.

The dangers of burning a patient and of causing aspiration must be avoided.

Student Learning Activities

1. Give examples of when a patient may need assistance with meals and when a patient may need to be fed.
2. Discuss the preparation of the patient and his/her environment before mealtime. (Include positioning)
3. View Trainex on "Feeding the Patient".
4. Demonstrate assisting a patient at mealtime and demonstrate feeding a helpless patient.
5. View the use of special equipment that might be used in feeding a patient: cup with spout, asepto syringe, dropper, straws, plate guards, larger or curved handled utensils.
6. List special measures to be followed in feeding a patient who has difficulty in swallowing, a blind patient, a patient with chewing difficulties, a child.
7. Discuss some safety measures that should be observed (prevent aspiration).
8. List all liquids which are included on the intake record.
9. View trainex on Intake and Output.
10. Practice measuring liquids in calibrated containers.
11. Convert measurements from apothecaries to metric system.
12. View a variety of intake-output forms used at local hospitals.

Objectives 8,9,10-continued

Developing Core

Wastes are primarily eliminated from the body through the urinary and digestive systems and the skin.

The bedpan and urinal are used for elimination by the bed patient.

Privacy, good position, and a warm bedpan enhance elimination.

Recording accurate observations of urine and feces eliminated contributes to the assessment of the patient's condition.

Cold water is used to remove organic matter since heat coagulates it.

Student Learning Activities-cont.

13. Teach a (student) patient how to accurately measure intake.

Objective 11: The student will be able to correctly administer and remove a bedpan or urinal, properly cleanse after use, and accurately measure and record output.

1. Define the following: Foley catheter, straight catheter, incontinence, retention, tarry.

2. View Trainex on "Urinary Care".

3. View a demonstration of placing a patient on a bedpan and offering him a urinal. (Use student volunteer)

4. Practice giving, removing, and receiving a bedpan and urinal by working in groups of two.

5. Practice using the fracture pan.

6. List measures used to promote good bowel and bladder elimination.

7. Record observations of normal and abnormal urine and feces on the blackboard.

8. View a demonstration of proper cleansing of a bedpan using bedpan flusher and disposable mop heads over a mop handle.

9. Using a graduated cylinder practice measuring urine output.

Objective 11-continued

Developing Core	Student Learning Activities
	10. Demonstrate emptying the continuous drainage bag.
	11. Practice recording on I&O sheet and nurses' notes. (Observations and amounts)
	12. View Trainex on "Bowel and Bladder Training".
	13. Discuss how incontinence can emotionally affect an individual.
	14. Explain why bowel and bladder training is more desirable than incontinence or the use of a Foley catheter.

Objective 12: The student will be able to bathe a patient correctly.

Bathing promotes comfort and cleanliness and stimulates circulation.	1. View Trainex on the "Bedbath" or view demonstration of a complete bed bath.
The intact skin is the body's first line of defense against infection.	2. Demonstrate a complete bedbath on a student and receive a return demonstration.
	3. Discuss the nursing care in giving a partial bedbath.
	4. Discuss the importance of perineal hygiene not only during the bath, but also in caring for incontinent patients.
	5. By role playing, demonstrate procedure and safety measures involved in assisting with a tub bath and shower.
	6. Identify equipment needed.

183

Objective 13: The student will be able to properly carry out personal hygiene measures for patients such as, back care, oral hygiene, hair care, nail care, and catheter care.

Developing Core	Student Learning Activities
Massage improves circulation. The use of emollient lotions keeps the skin soft and pliable.	1. View a demonstration of back care. 2. Return the demonstration of back care. 3. Discuss the causes of decubite, the signs and symptoms, and nursing care (special back care) and prevention. 4. List measures used to prevent decubiti.
Frequent, thorough oral hygiene is necessary to keep patient's mouth healthy.	5. List the equipment necessary for routine oral hygiene and for special mouth care. 6. View demonstration of routine and special oral hygiene including denture care. 7. Practice giving oral care to fellow student.
Hair care helps improve the patient's feeling of well-being, gives the nurse a chance to observe for scalp disorders and stimulates circulation to the scalp.	8. Practice giving hair care to another student. 9. List ways to remove tangles from the hair.
Exercise of the shoulder joints can be accomplished by encouraging the patient to comb his hair.	10. Discuss why patients should be encouraged to brush and comb their own hair.
Hair should be kept clean.	11. List the equipment needed for a shampoo. 12. Discuss the factors that should be considered before shampooing a patient's hair. 13. Role play a nurse shampooing a patient's hair.

Objective 13-continued

Developing Core	Student Learning Activities
Being clean shaven elevates self image.	14. View a demonstration of shaving a male patient and return the demonstration.
Frequent nail care eliminates a source of infection.	15. View a demonstration of nail care and return the demonstration.
	16. By role playing, relate to a patient the dangers of improper cutting of nails.
In giving patient care, there are certain factors that require special attention; one of these is the Foley catheter.	17. Discuss why special perineal hygiene should be given to a patient with an indwelling catheter.
To be effective, I.V. infusions must be patent. It is the nurse's responsibility to observe for patency and signs of a reaction to the substance being infused.	18. List what observation should be made by nurse while caring for a patient with an indwelling catheter. (Patency, tubing taped to leg, no kinks in tubing)
	19. Practice turning and transporting a patient with a Foley catheter (use the Chase Doll as the patient).
	20. Define what an intravenous infusion is and list the substances that can be given in this manner.
	21. View Trainex on "Nursing Care During Intravenous Therapy".
	22. Discuss what observations the nurse should make in caring for a patient with an I.V.
	23. List the signs of I.V. infiltration.
	24. Practice counting the number of drops per minute in an I.V., how to control the flow and how to turn it off.

185

Objective 14: The student will be able to display some proficiency in basic observation skills.

Developing Core	Student Learning Activities
Observations are an important part of nursing care. Noticing and reporting even a minor change can many times prevent serious problems.	1. List some observations that the student nurse should notice and report. (Change in skin color, change in vital signs, drainage from surgical wound, etc.) 2. Discuss the importance of immediate and accurate reporting.

Objective 15: The student will be able to carry out active and passive range of motion exercises.

It is necessary to exercise a patient's limbs to prevent the formation of cotractures. If a patient is unable to actively move his limbs then the nurse must do so by using passive range of motion exercises.	1. Define contractures. 2. Review flexion, extension, abduction, circumduction, rotation. 3. Explain why range of motion exercises are so important. 4. View Trainex "Range of Joint Motion Exercise". 5. Differentiate between active and passive exercises and discuss which one is most effective. 6. Practice doing active and passive range of motion exercises on a fellow student. 7. Role play a nurse teaching a patient how to do active range of motion exercises (another student can be the patient). 8. Review proper patient positioning.

Objective 16: The student will be able to properly use safety devices on patients when needed.

Developing Core

Protective restraint is necessary to prevent injury, but could have harmful psychological and physical effects if improperly applied.

Posey devices, restraints, side rails, and the geriatric chair are just a few of the safety devices that are used to prevent injury to the patient.

Student Learning Activities

1. View a demonstration on the use of commercially available safety devices and return the demonstration (all students should have the opportunity to be both a patient and nurse).

2. Improvise various types of safety devices and demonstrate their use in a bed and in a chair. (Sheet restraints, mits)

3. Form a panel and discuss how patients might feel when they are restrained.

Objective 17: The student will be able to identify and practice meeting the basic needs of a chronically ill patient.

The basic needs of a chronically ill person are identical to the needs of any patient except that, because of the patients incapacitation, more emphasis on the maintenance of body functions is required.

1. View the trainex "Personal Care in Long Term Illness".

2. Discuss why conscientious nursing care must be given to the chronically ill patient.

3. View trainex "Positioning to Prevent Contractures".

Objective 18: The student will be able to demonstrate methods of adapting home equipment to meet the basic needs of patients in the home.

Objective 18-continued

Developing Core

Most patients with a chronic or long-term illness can be cared for at home and actually prefer to be at home, where family and friends are close by and where they can still contribute something to family life.

The comfort of the patient is directly related to the nursing care he receives and is to be strived for because it promotes his recovery and feelings of well being.

The student be aware of available community resources and their activities in order to refer the patient to the proper agency.

The most important contributions to his rehabilitation are made by the patient himself. Everyone wants to be independent and should be encouraged to do whatever he can do for himself.

Student Learning Activities

1. Improvise a backrest fashioned out of a cardboard box.

2. Improvise common household items for patient care (old shower curtain as rubber sheet, etc.)

3. The student will list the safety measures involved with each process of keeping the patient clean and comfortable.

4. List some methods of maintaining sanitation in the home.

5. Students will visit a "meals on wheels" within their community and describe to the class their function toward safety, economy, comfort, and aesthetics of the individual.

6. Other students will visit VNA and Public Health Agency and determine what services are provided.

7. Student will visit and report to the class the equipment that is available through rental agencies and the cost of common patient care equipment, (such as a hospital bed, wheelchair, potty chair).

8. Have the student visit an individual on home care and report how he can:
   a. Feed self
   b. Bathe self
   c. Walk
   d. Toilet self
   e. Prepare a simple meal for self

Evaluation:

1. The student will demonstrate correct handwashing technique.
2. The student will describe the general environmental needs of the patient, including medical asepsis safety.
3. The student will admit a patient using good interpersonal skill.
4. The student will accurately take temperature, pulse and respiration, and blood pressure.
5. The student will correctly make the four types of hospital beds using proper body mechanics and safety devices.
6. The student will properly position a patient.
7. The student will assist a patient using transfer activities, using correct body Mechanics.
8. The student will prepare a patient and his environment for mealtime.
9. The student will assist a patient at mealtime.
10. The student will correctly feed a helpless patient.
11. The student will accurately record fluid intake and output.
12. The student will correctly administer a bedpan or urinal to patient and cleanse after use.
13. The student will give special back care.
14. The student will give routine back care.
15. The student will carry out oral hygiene correctly.

Evaluation-continued

16. The student will give denture care, remembering the correct method of caring for dentures.

17. The student will give hair care to a patient.

18. The student will give nail care.

19. The student will demonstrate knowledge of principles of catheter care.

20. The student will observe I.V. infusions and note signs of infiltration.

21. The student will display proficiency in basic observation skills.

22. The student will carry out active and passive range of motion exercises.

23. The student will use safety devices on patients when needed.

24. The student will identify ways of meeting the basic needs of chronically ill patients.

25. The student will demonstrate methods of adopting home equipment to meet the physical needs of patients in the home.

26. The student will pass tests of performance for proficiency.

27. The student will pass written tests with 70% accuracy.

Total: 135 hours
Principles and Practice: 23 hours
Clinical Experiance: 104 hours
Conference/Evaluation: 8 hours

FUNDAMENTALS OF HEALTH CARE-SKILLS
UNIT VII

Introduction: This unit is designed to familiarize the students with those fundamental skills necessary to meet the therapeutic needs of the patient. The course will include assisting with diagnostic procedures and a few of the more advanced skills that will help prepare the student for his/her hospital experience.

Specific Objectives:

The student will be able to:

1. Collect specimens of urine, feces, and sputum.
2. Perform urine reductions and record results.
3. Assist with a physical examination: position and drape a patient, identify equipment used for a physical examination and discuss its care after use.
4. Apply abdominal and perineal binders, elastic hose and elastic bandages to the extremeties.
5. Fill an ice cap and hot water bottle, give a sitz bath, apply unsterile hot and cold moist dressing, use a heat lamp.
6. Give a cleansing and retention enema.
7. Record observation following S.O.A.P.I.E. technique, participate in completion of nursing care plans.
8. Give post mortem care.
9. Give pre and post operative care.
10. Give care and perform treatments on an infection control unit: i.e., put on and remove gown, transfer non-expendable items, transport a patient from the unit, demonstrate good handwashing technique.
11. Open a sterile package and apply sterile gloves without contamination.

Written

Kozier, Barbara B. and DuGas, Beverly W. Fundamentals of Patient Care, Philadelphia: J.B. Lippincott Company, 1967.

Audio-Visual

Equipment for Demonstration

Film Strips
Care of the Dying

Written

Stevens, Carolyn B. Special Needs of Long Term Patients, Philadelphia: J.B. Lippincott Company, 1974.

Thompson, Ella M. and Rosdahl, Caroline B. Textbook of Basic Nursing Second Edition, Philadelphia: J.B. Lippincott Company, 1973.

Wood Lucille A. Nursing Skills to Allied Health Services, Vol. I, II, and III, Philadelphia: W.B. Saunders Company, 1972.

Audio-Visual

Trainer:
Cleansing Enema
Isolation Technique
Operating Room Skin Preparation
Pre and Postoperative Care
Sterile Technique and Dressing Change

Film:
I Dress a Wound

Objective 1: The student will be able to collect specimens of urine, feces, and sputum.

Developing Core

Laboratory examinations of body discharges are an extremely valuable part of diagnosis and treatment.

Application of the principles of infection control in the collection of specimens is imperative to prevent outside contamination of the specimen and to protect personnel.

Proper collection, accurate labeling and prompt delivery to the lab are essential if examination of specimens is to be meaningful.

Student Learning Activities

1. View a variety of equipment used in the collection of specimens i.e., urine, feces and sputum.
2. List the normal characteristics and constituents of urine, feces, and sputum and compare this with lab reports which might be found in specific conditions.
3. Simulate collection of urine and feces specimens from Chase doll, and sputum from a student "patient".
4. Label specimen containers and complete lab requisition forms used at local hospital.
5. View samples of lab requisition and report forms.

Written

Stevens, Carolyn B. Special Needs of Long Term Patients, Philadelphia: J.B. Lippingcott Company, 1974

Thompson, Ella M. and Rosdahl, Caroline B. Textbook of Basic Nursing, Second Edition, Philadelphia: J.B. Lippincott Company, 1973.

Wood Lucille A. Nursing Skills to Allied Health Services, Vo. I, II, and III, Philadelphia: W.B. Saunders Company, 1972.

Developing Core

Laboratory examinations of body discharges are an extremely valuable part of diagnosis and treatment.

Application of the principles of infection control in the collection of specimens is imperative to prevent outside contamination of the specimen and to protect personnel.

Proper collection, accurate labeling and prompt delivery to the lab are essential if examination of specimens is to be meaningful.

Audio-Visual

Trainex
Cleansing Enema
Isolation Technique
Operating Room Skin Preparation
Pre and Postoperative Care
Sterile Technique and Dressing Change

Film:
I Dress a Wound

Objective 1: The student will be able to collect specimens of urine, feces, and sputum.

Student Learning Activities

1. View a variety of equipment used in the collection of specimens i.e., urine, feces, and sputum.

2. List the normal characteristics and constituents of urine, feces, and sputum and compare this with lab reports which might be found in specific conditions.

3. Simulate collection of urine and feces specimens from Chase doll, and sputum from a student "patient"

4. Label specimen containers and complete lab requisition forms used at local hospital.

5. View samples of lab requisition and report forms.

193

Objective 1-continued

Developing Core	Student Learning Activities
Interruption of the closed drainage system affords a portal of entry for bacteria.	6. Demonstrate on chalk board recording of specimen collection. 7. View a demonstration, on chase doll, collection urine specimen from catheter drainage. 8. View a demonstration for the use of clean catch equipment. 9. Discuss the purposes and procedures for the 24 hour urine collection.
	Objective 2: The student will be able to perform urine reductions and record results.
	Student Learning Activities
Sugar and acetone are adnormal constituents of urine commonly found in the urine of a diabetic patient. Presence or absence of sugar and acetone in the urine influences treatment of the diabetic.	1. View demonstration of various models of testing urine for sugar and acetone. a. clinitest b. testape c. acetest d. ketostex e. diastix 2. Collect a specimen of student's own urine and test for sugar and acetone. 3. Record results of urine reduction on a variety of forms used by local hospitals.

194

Developing Core

The physical examination plays an important part in the doctors assessment of health.

The practical nurse can allay apprehension, embarrassment, and fear of the examination by her attitude and manner.

An alert nurse will anticipate the needs of the physician.

Binders serve to support a part and to hold dressings in place and must not constrict circulation or impair respirations.

Elastic hose give support and prevent the formation of blood clots.

To prevent circulatory constriction, elastic hose must fit properly.

Objective 3: The student will be able to assist with a phyical examination, position and drape a patient, identify equipment used for a physical examination, and discuss its care after use.

Student Learning Activities

1. Identify and collect equipment needed by the physician.

2. View demonstrations of positions and draping used in a physical examination and return the demonstration on the Chase doll.

3. By role play, in groups of three, demonstrate the practical nurse's role in the physical examination.

Objective 4: The student will be able to apply abominal and perineal binders, elastic hose, and elastic bandages to the extremeties.

Student Learning Activities

1. View a demonstration of the application of a secultetus and straight binder and return demonstration. (Use Chase doll for T-Binders)

2. View demonstration of application of eleastic hose and return demonstration on a student "patient".

3. View a demonstration of application of an elastic bandage from foot to groin, and hand to elbow, and return demonstration.

195

Objective 4-continued

Developing Core

Bandages serve to support, imobilize, and hold dressings in place.

Observation of neuro-vascular impairment must be made regularly.

Heat dilates blood vessels increasing blood supply to a part, relaxes muscles, and localizes infection.

Cold contracts blood vessels thereby preventing and controlling hemorrhage, prevents and reduces swelling and relieves pain.

Neuro-vascular checks must be made frequently when using heat and cold.

Objective 5: The student will be able to: fill and ice cap and hot water bottle, give a sitz bath, apply unsterile hot and cold moist dressing, use a heat lamp.

Student Learning Activities

1. View a demonstration of filling and ice cap and a hot water bottle and return the demonstration.

2. View a demonstration of the use of disposable sitz bath equipment.

3. View a demonstration of application of unsterile hot and cold moist dressings and return demonstration.

4. View the demonstration of the use of a heat lamp and return the demonstration.

5. Make a poster depicting the safety factors involved in hot and cold treatments.

Developing Core

A cleansing enema is the introduction of fluid into the colon through the rectum to remove feces and flatus.

An oil retention enema is to be "retained" and may precede a cleansing enema.

Giving an enema involves principles of physics and chemistry and requires a physician's order.

The flatus tube is inserted into the rectum to relieve the symptoms of abdominal distention.

Objective 6: The student will be able to give a cleansing and retention enema.

Student Learning Activities

1. View the film strip "Cleansing Enema".
2. View a demonstration of cleansing and retention enema on the Chase doll and return the demonstration.
3. Discuss the reasons for giving a cleansing enema and the importance of reporting and recording the results.
4. Draw a diagram of the lower intestinal tract and identify the structures involved in an enema.
5. List the temperature, amounts, and effects of solutions used for enemas.
6. View a commercially prepared enema solution units and read the directions for administration.
7. Prepare a list of precautions in giving enemas.
8. View a demonstration of the use of a flatus tube.
9. Demonstrate on the chalkboard an example of recording the results of an enema and the effects of the flatus tube.

Objective 7: The student will be able to: record observations following S.O.A.P.I.E. techniques, participate in completion of the nursing care plan.

Objective 7-continued

Developing Core

The problem-oriented system consists of four components: (1) the data base, (2) problem list, (3) patient-care plans, and (4) progress notes for follow up on each problem and plan, along with a discharge or transfer summary.

The problem oriented system eliminates the indecisiveness and the ambiguities in charting. It provides a tool to evaluate nursing performance as well as patient care.

The nursing care plan serves not only to direct the activities personnel, but it also serves as an integrative force between the patient and nursing staff.

Student Learning Activities

1. View the various forms used in problem-oriented charting.
2. List on the chalkboard those situations that would be considered patient problems.
3. Plan a nursing situation with problems and record observaions and activities following the S.O.A.P.I.E. format.
4. Submit sample charting from hospital experiences.

Objective 8: The student will be able to give post-mortem care.

An understanding attitude and a sincere consideration will assist patient and family to accept death.

Medical personnel must assess their own feeling about death if they are to assist others.

Student Learning Activities

1. View film strip "Care of the Dying".
2. Discuss, in groups of ten, feelings about death and dying.
3. Interview clergy of various faiths and present an oral report on religious requirements on death and dying.

Objective 8-continued

Developing Core

Respect for the human body continues after death.

The physician certifies death. Disposition of the body and valuables is a legal responsibility.

Student Learning Activities

4. Demonstrate the physical care of the body after death, using the Chase doll.

5. By role play, demonstrate approach to the family of the deceased.

6. Compile a list of the physical signs of impending death.

Objective 9: The student will be able to give pre and post-operative care.

Conscientiousness and efficiency in carrying out all routine and special pre-operative responsibilities, promot optimum safety in surgery, and an uneventiful recovery.

Fear and apprehension can be minimized by informing the patient about what is being done and why, in terms he can understand.

Post-operative care is directed at keeping the patient comfortable, preventing complications and returning him to as near normal a state of health possible.

Local and general anesthetics are used after careful assessment of the individual patient.

Student Learning Activities

1. View the film strip "Pre and Post-operative Care".

2. By role play, admit a surgical patient and demonstrate pre-operative physical, psychological, and spiritual preparation.

3. Review a variety of pre-operative check lists from local hospitals, and devise one which will encompass the best features of each.

4. Review, by demonstration, a surgical bed.

5. By role play, demonstrate reception of a patient from recovery room, and immediate care.

6. Make a chart indicating types of anesthesia, their merits, and dangers.

7. View film strip "Operating Room Skin Preparation".

8. In groups of two practice shaving legs.

Objective 9-continued

Developing Core

Student Learning Activities

9. Prepare a list of the common post-operative complications and the nursing measures used to prevent them.

Objective 10: The student will be able to give care and perform treatments in an infection control unit i.e., put on and remove grown, transfer non-expendable items, transport a patient from the unit, demonstrate good handwashing technique.

Developing Core

Infection control units are established to protect patients and personnel.

The type of control is dependent upon the specific disease and its mode of transmission.

The set up may vary from one institution to another, but the principles of transmission and control remain the same.

Disposables afford a greater margin of safety.

Student Learning Activities

1. View film strip on "Isolation Technique".

2. Prepare a list of infectious diseases and group them as to control and mode of transmission.

3. View a demonstration of gowning and masking and return demonstration.

4. Set up an infection control unit and discuss the function of each piece of equipment. Label contaminated areas red.

5. Demonstrate the transfer of urine specimen.

6. Demonstrate obtaining vital signs.

7. Demonstrate "double bagging" and "tearing down" a protective care unit.

8. Present a demonstration of the measures used in caring for a patient with: infectious hepatitis, staph infection in a leg wound, pulmonary tuberculosis.

Objective 10-continued

Developing Core

Surgical asepsis is accomplished by making and keeping objects free of all microogranisms.

There are various methods of sterilization.

When a sterile object is tounched by an unsterile object it becomes contaminated and is no longer sterile.

Student Learning Activities

9. Discuss the psychological effects of "isolation".

Objective 11: The student will be able to: open a sterile package, apply sterile gloves without contamination, change a simple sterile dressing.

Student Learning Activities

1. Review general principles of surgical asepsis.
2. Differentiate between surgical asepsis and medical asepsis.
3. View film strip "Sterile Technique and Dressing Change".
4. Discuss the concept of surgical asepsis and identify situations in which it is used.
5. View a demonstration of opening a sterile package and return the demonstration.
6. View a demonstration of the application of sterile gloves and return the demonstration.
7. View a demonstration of the changing of a simple sterile dressing and return the demonstration.
8. View film "I Dress a Wound".

Evaluation:

1. The student will receive a satisfactory grade on periodic written examinations.

2. The student will be evaluated on the accuracy and proficiency in carrying out the procedures demonstrated.

3. The student will be evaluated on manner and attitudes displayed in role play.

4. The student will submit samples of problem-oriented charting from prepared situations and will be evaluated on legibility, construction, accuracy, and clarity.

203

HUMAN HEALTH CARE I

204

MODULE A
MEDICAL-SURGICAL NURSING I

Recommended time
Theory: 3
Practice: 6
Total: 9 hrs.

INTRODUCTION TO BASIC CONCEPTS OF HUMAN HEALTH CARE

Introduction: This unit acquaints the student with the organization and administration policies and the physical facilities of the health care facility to which he/she is assigned. This orientation includes an introduction to working relationships and fundamental information necessary to achieve specific responsibilities.

Specific Objectives:

The student will be able to:

1. Identify school, hospital, and nursing service policies.
2. Explain the functions and interrelationships of specific departments and personnel within the hospital.
3. Interpret the role and responsibilities of the student practical nurse in learning experiences and on the Nursing Team.

Written

Clinical Charts and Forms
Policy and Procedure Manuals
Student Handbook
Diet Manual
Laboratory Manual

Audio-Visual

Equipment on Unit
Library facilities

Objective 1: The student will be able to identify school, hospital and nursing service policies.

Developing Core

Policies are regulations formulated for continuity of operations within a given institution.

Student Learning Activities

1. Present the overview and objectives of the program. Discuss each objective thoroughly.
2. Using the student handbook, reinforce the clinical policies on: attendance, dress code, professional

205

Objective 1-continued

Developing Core	Student Learning Activities
	manner, grades evaluations. Discussion and role playing.
	3. Distribute rotation sheets, calendar, evaluations, and anecdotal forms. Explain each.
	4. Identify pertinent hospital policies that are applicable to the student.
	5. Present general plan of the specific health care facility, including size, specialities etc.
	6. Explain the hospital organization chart the channels of communication and the fire drill regulations.
	Objective 2: The student will be able to explain the functions and interrelationships of specific departments and personnel within the hospital.
Specific departments within a hospital, perform certain functions which are interrelated for effective patient care.	1. Accompany students on a guided tour of the specific physical facilities.
	2. Introduce students to the health team personnel.
	3. Encourage comments and clarify and questions.
	4. Accompany students to individual assigned units and explain equipment and facilities.
	5. Explain hospital forms. Include kardex, chart, clinical sheets, requisitions, and student nursing care plan.
	Objective 3: The student will be able to interpret the role and responsibilities of the student practical nurse in learning experiences and on the nursing team.

206

Objective 3-continued

Developing Core	Student Learning Activities
The student practical nurse functions as a integral member of the health team. In performing her duties he/she is cognizant of the criteria needed for human health care.	1. Reinforce the role of the student practical nurse. Discuss the roles of the members of the nursing team. 2. Discuss ethical and legal responsibilities in the health care facility. 3. List the qualities necessary for personal and professional adjustment in the patient care setting-Role play. 4. Give examples of hospital situations which require unquestionable integrity. 5. Observe specific examples of student's ability to follow directions, e.g., addressograph, central supply requisition.

Evaluation:

1. The student will be able to function as a team member on his/her assigned unit.
2. The student will be able to adjust from the Fundamentals of Human Health care to assigned health facility with minimal guidance.
3. The student will be able to accept responsibility for helping to fulfill needs of specifically assigned patients, in addition to accepting responsibility to other patients on the unit.
4. The student will be able to identify ways of initiating effective interpersonal relationships.
5. The student will be able to professionally adhere to policies of the health facility.
6. The student will be able to name and locate departments pertinent for patient care.

Recommended time
Practice: 30
Theory: 20
Total: 50 hrs

NURSING THE PATIENT WITH PROBLEMS OF LOCOMOTION I

Introduction: This unit includes the normal structure and function of the musculoskeletal system and the effects of deviations. Emphasis will be placed on physical and psychosocial effects of immobility, prevention, relief of pain and prevention of disability. Total nursing care of a patient with traumatic injuries and inflammatory disorders will be discussed. The student will be assigned care of these patients on the clinical unit.

Specific Objectives:

The student will be able to:

1. Identify, define, and describe musculoskeletal structures and their functions.
2. Discuss the ~~common~~ most common physical problems faced by the patient with musculoskeletal conditions, assist in their prevention and formulate solutions.
3. Discuss the psychological and social needs and how they can be met of patients with common short and long term musculoskeletal conditions including traumatic injuries and arthritis.
4. Assess the presence of pain, identify causes, and use measures to prevent and relieve it.
5. Identify and discuss common drugs used in the treatment of musculoskeletal conditions including their classification, desired results, toxic symptoms, mode of administration, and nursing implications.
6. Adapt principles of dietary therapy essential in providing optimum nutrition to the patient with a musculoskeletal condition.
7. Describe the disease process, diagnostic tests, medical and surgical management, and related nursing.

References

Written

Baker, Charles W. Physician's Desk Reference ed. 29, Oradell, New Jersey: Medical Economics Company, 1975.

Audio-Visual

Model torso
Animal bones and muscle specimens
Anatomical charts
Human skeleton

References-cont.

Written

Brunner, Lillian Sholtis and Doris Smith Suddorth. Textbook of Medical - Surgical Nursing, ed. 3, Philadelphia: J. B. Lippincott Company, 1975.

Falconer, Mary V. et al. The Drug, The Nurse, The Patient, ed. 5, Philadelphia: W. B. Saunders Company, 1974.

Jacob, Stanley W. and Clarice Ashworth Francone. Structure and Function in Man, ed. 2, Philadelphia: W. B. Saunders Company, 1970. (with laboratory manual)

Larson, Carol B. and Marjorie Gould. Orthopedic Nursing, ed. 7, St. Louis: C. V. Mosby Company, 1970. (formerly Calderwood's Orthopedic Nursing)

Thompson, Ella M. and Caroline Bunker Rosdahl. Textbook of Basic Nursing, ed. 2, Philadelphia: J. B. Lippincott Company, 1973.

Audio-Visual

Trainex films:
"Care of The Patient in Traction"
"Positioning To Prevent Contractures"
"Care of The Patient in a Cast"
"Crutch Walking"
"Care of The Patient in Cervical Traction"

Films:
Source: Arthritis Foundation
The Afflicted
Five Faces of Arthritis
The Fifth Family
The Homemaker with Arthritis
The Home Management of Disability from Arthritis
The Misery Merchant
One of Sixteen Million
Prevention of Disability in Rheumatoid

Pamphlets:
Source: The Arthritis Foundation
About Gout
Arthritis - The Basic Facts
Osteoarthritis - Handbook for Patients
The Truth About Aspirin for Arthritis
The Truth About Diet and Arthritis

Objective 1: The student will be able to identify, define and describe musculoskeletal structures and their functions.

Developing Core

The normal functioning of the

Student Learning Activities

1. Prepare and distribute a study guide outlining objectives,

209

Objective 1-continued

Developing Core	Student Learning Activities
musculoskeletal system depends upon all component parts functioning well and together. Knowledge of normal structure and function is essential to understanding the effects of deviations. The composition and construction of bone are partly dependent upon the presence of mineral salts, especially calcium and phosphorus. The periostial provides nutrients essential to bone growth. The growth of bones occurs longitudinally and in diameter. The hematopoietic function of bone occurs in the redbone marrow. Joints bear weight and provide motion. Ligaments hold bones together. Tendons attach muscle to bone. Key words of the muscular system are contraction and movement. When muscles contract they effect movement. How skeletal muscles are arranged in relation to joints and the innervation they receive determine what movements are possible.	required readings and suggested references, content, assignments due and the dates, and evaluation procedures. 2. Compile and give to the student a list of words, relating to structure and function of the musculoskeletal system, to define, learn to spell and pronounce. 3. Using disarticulated and articulated skeleton, identify a prepared list of individual bones and their parts; note their classification and describe their function; show the relationship of physical characteristics to function and the relationship of the part to the whole. 4. Prepare and provide the student with diagrams of the skeletal system for proper labeling, using a given list of terms. 5. Obtain various bones from a butcher shop. Have them sawed longitudinally and medially to demonstrate the difference in composition, to observe pattern of growth, and to show the relationship of internal structure of bone to its function. 6. Secure beef or pig knee joints from a butcher shop. Have students identify cartilage, synovial membrane and fluid, joint capsule, and demonstrate their function. 7. Using the parts of a chicken have students demonstrate the gross structure and action of joints, tendons, ligaments, and cartilage. 8. Secure X-ray films of joints, and with the use of the articulated and disarticulated skeleton compare the three types of articulation. 9. Using volunteer students, locate and demonstrate the function of the principal skeletal muscles.

Objective 1-continued

Developing Core	Student Learning Activities
	10. Using the torso model, charts, and transparencies study the important muscles of the body.
	11. Using a muscle from any lab animal, tease it apart to separate one fiber from the bundle to demonstrate the make-up of a muscle.
	12. Show slides and have students draw diagrams of the three types of muscle tissue.
	13. Select specific activities for students to perform, and have them identify the muscles used in each.
	14. Using their own muscles, have students demonstrate contractility, extensibility and elasticity. Demonstrate muscle tone.
	15. View and compare transparencies of normal and atrophied muscles.
	16. Discuss the rationale and technique for giving I.M. injections. Delinate the preferred sites on the Chase doll.
Objective 2:	The student will be able to discuss the common physical problems faced by patients with musculoskeletal conditions, assist in their prevention, and formulate solutions.
Imobility due to musculoskeletal conditions can cause many hazards.	1. Have student explore and discuss the hazards of immobility including contractures, decubiti, and inability to perform activities of Daily Living. (urinary problems such as calculi)
The patient with a musculoskeletal disability must make many adaptations to perform the activities of Daily Living. The rehabilitation	2. Review Trainex: "Positioning to Prevent Contractures" and discuss how body alignment affects musculoskeletal function.

Objective 2-continued

Developing Core	Student Learning Activities
nurse teaches, guides, supervises, and motivates, but the patient must DO. The best treatment for decubiti is prevention.	3. Arrange for the student to observe the physical therapist performing range of motion exercises and other types of activity to keep the patient functional. 4. Under the supervision of the physical therapist the student will practice range of motion excercises on each other. 5. Direct students to make a display of devices used to provide temporary maintenance of good functional anatomical position of joints and demonstrate their application. 6. Have the students demonstrate the use of: footboard, bedboard, trochanter roll, hand roll, and a posterior leg splint among devices used to prevent contractures. 7. Role play teaching a patient and his family how to check his position for alignment and how to perform range of motion exercises. 8. Demonstrate how improper placement of pillows and use of a gatch bed can cause hip and knee flexion contractures. 9. Arrange for students to observe the occupational therapist teaching patients to perform activities of Daily Living. 10. Have students report on available assistive devices and modifications that can be made in the home to allow the patient to be more independent. 11. Review Trainex: "Prevention and Treatment of Decubiti." 12. Discuss the relationship of skin care, pressure, and tissue nutrition in the prevention of decubiti.

212

Objective 2-continued

Developing Core	Student Learning Activities
	13. Illustrate the areas which are most vulnerable to decubiti, and reinforce method of message of these areas using a student
	14. Demonstrate and permit students to practice use of special equipment used to prevent decubiti: Include: turning frames, oscillating bed, alternating pressure mattress, floatation devices, and other available equipment.
	15. Direct student to plan a 24 hour decubitus prevention schedule for a patient indicating type of activity and time.
	16. Discuss how a decubitus affects the nursing care plan of a patient with a musculoskeletal condition.
	17. Assign students to research prevalent remedies used in the treatment of decubiti and explain the rationale for their use.
	Objective 3: The student will be able to disucss the psychological and social needs and how they can be met of patients with musculoskeletal conditions.
The nurse must understand the patient's reactions to disability so that she can help him/her achieve self-sufficiency within his his/her capabilities. The acceptance of limitation and motivation to take part in a rehabilitation program is necessary.	1. Lead a group discussion on the stages of emotional reactions a person experiences when informed of a serious disability.
A patient develops a sense of security when on a regular program of activity.	2. Assign the students to plan an activity program for a patient with a specific musculoskeletal condition and incorporate it into his/her nursing care plan. Allow the patient to participate in the planning.
	3. Have student discuss how he/she will assist the patient and his/her family to adjust to disability.
	4. Arrange for students to sit in on a rehabilitation team conference on his/her assigned patients.

213

Objective 4: The student will be able to assess the presence of pain, identify causes, and employ measures to prevent and relieve it.

Developing Core

Most patients with musculoskeletal conditions experience pain. Pain consumes energy; all measures must be directed to its relief or prevention.

Student Learning Activities

1. List the possible causes of pain in musculoskeletal conditions and measures to prevent or relieve it.

2. Identify common drugs used in the relief of pain including analgesics, sedatives, soporifics, and ataractics.

3. Discuss the use of heat and cold applications in the relief of pain.

Objective 5: The student will be able to identify and discuss common drugs used in the reatment of musculoskeletal conditions including their classification, usual dosage, desired results, toxic symptoms, mode of administration, and nursing implications.

Chemotherapy is an important part of the treatment of musculoskeletal conditions.

1. Direct the student to compile an index file containing an individual information card on common drugs used for the treatment of musculoskeletal conditions. The file will be kept current, adding drugs ordered on patients he/she cares for. Among the classification filed should be: muscle relaxants, anti-flammatory agents, salicylates, hormones, antispasmodics, analgesics, antimalarial compounds, antibiotics, antineoplastic, anticholine compounds.

2. Supervise the student in the administration of medications for his/her patients.

Objective 6: The student will be able to adapt the principles of diet therapy in order to provide optimum nutrition to the patient with a musculoskeletal condition.

Throughout his/her career the practical nurse will be

1. Reinforce the essentials of good nutrition. Explain what effect the diet has on muscles and activity.

Objective 6-continued

Developing Core	Student Learning Activities
reminded of the direct relationship of good nutrition and optimum health. By constantly using his/her basic knowledge of the essentials of good nutrition, the practical nurse will find that the ability to adopt foods and nutrients to the individual patient will be facilitated.	2. From a week's menus in the school cafeteria, have the student point out foods high in calcium and phosphorus. 3. List ways of coping with the statement: "Patients with arthritis are frequently victims of advertising and fad diets." 4. Discuss self-help devices for patients with physical disabilities Allow students to examine those. Encourage suggestions for newer techniques. 5. Discuss specific vitamins and minerals that encourage positive return of musculoskeletal function.
	Objective 7: The student will be able to describe the disease process, diagnostic tests, medical and surgical management, and related nursing measures of common short and long term conditions of the musculoskeletal system.
Trauma to the musculoskeletal system causes fractures. Fractures can also occur because of weakening or disease of the bones. Traction may be used to reduce a fracture, immobilize a fracture after reduction, to lessen muscle spasm and prevent or overcome deformities. Casts are applied to immobilize a fractured bone in proper alignment during the healing process.	1. Provide the student with a terminology list including diseases and disorders of the musculoskeletal system. He/she will define, learn to spell, and pronounce them. 2. Using diagrams and selected X-rays have student define, identify, and discuss the types of fractures. 3. Have the student list the symptoms of fracture and demonstrate emergency treatment of a suspected fracture. 4. Discuss fracture reduction. Include closed reduction, use of traction and open reduction, and the nursing management following these procedures. 5. Review Trainex: "Care of a Patient in Traction" "Care of the Patient in Cervical Traction"

Objective 7-continued

Developing Core

Arthritis is the nation's No. 1 crippling disease. The term "arthritis" includes over a hundred conditions which cause aching and pain in joints and connective tissue.

Of all forms of arthritis, Rheumatoid is the most dangerous, destructive and disabling.

Student Learning Activities

6. Arrange for students to view and handle equipment needed to apply traction and to become familiar with it.

7. Have students observe the application of traction and view as many types of traction as clinically available.

8. Instruct all students to develop a nursing care plan for a patient with reduction of a fracture by traction.

9. Have the student prepare a chart indicating principles and safety precautions in the care of a patient in traction.

10. View and discuss Trainex: "Care of the Patient in a Cast."

11. Assign the student to make a nursing care plan for a patient in a body cast.

12. Arrange for students to visit the "Cast Room" to observe and assist in the application and removal of a cast.

13. Explain evaluation of neurovascular function of a patient in an arm or leg cast.

14. Demonstrate and have students practice petaling of a cast.

15. Demonstrate preparation of bed to receive a cast patient and technique in turning a patient in a cast. Allow students to practice.

16. Review Trainex: "Crutch Walking."

17. Name and explain the differences in the five most common kinds of arthritis.

216

Objective 7-continued

Developing Core	Student Learning Activities
	18. Direct students to make a poster listing the warning signs of arthritis.
	19. Secure and show films on arthritis supplied by The Arthritis Foundation.
	20. Identify, explain tests and examinations which are useful in diagnosis of rheumatoid arthritis.
	21. Discuss two theories concerning the etiology of rheumatoid arthritis.
	22. Obtain charts of selected rheumatoid arthritis patients and have students study them to ascertain symptoms, course, treatment, and frequency of remissions and exacerbations.
	23. Instruct students to develop a nursing care plan for a patient with rheumatoid arthritis including a plan for home care following discharge.
	24. Demonstrate transfer activities, ambulation using canes, walkers, and crutches. Provide practice sessions for students.
	25. Assign students to accompany patients to the physical therapy and occupational therapy departments to observe the patient's planned program of activity.
	26. Role play teaching a patient the principles and precautions of self medication.
	27. Discuss the psychological needs of a patient with rheumatoid arthritis and how he/she can assist the family in meeting these needs.

Objective 8: The student will be able to demonstrate the expertise necessary to care competently for patients with fractures and arthritis.

Developing Core

In order for the student practical nurse to play a responsible role in the care of the patient with traumatic injuries and arthritis, he/she must have some underlying knowledge of the disease processes that are involved. In addition, he/she must be aware of what the total health team is trying to accomplish for the individual patient.

Student Learning Activities

1. Assign students to care for patients with common musculoskeletal conditions.

2. Review plan of care developed by the student. Question student in order to ascertain his/her knowledge of underlying nursing principles.

3. Direct students to review charts and discuss various facets with them. Appraise students understanding comment on weaknesses and strengths.

4. Supervise medication techniques.

Remedial

Review and study individually the Trainex film strip "The Skeletal and Muscular Systems."

Direct student to draw and cut out paper muscle shapes and attach them to the articulated skeleton with tape.

Observe students participating in a team conference. Direct students to review notes and assign additional reading in areas of individual weakness.

Enrichment

To demonstrate the chemical composition of bone direct students to:

soak a long bone of a pig in 10% nitric acid for 24 hours. (This removes inorganic salts which produces soft flexible bones).

Enrichment (cont.)

bake a similar bone in a 250° oven for 2 hours. (This removes organic constituents - a lack of which produces hard and brittle bones).

The student will record and report results.

Assign the student to review the functional capabilities (according to the rehabilitation team's assessment) of a patient and prepare a plan with adaptations for performing self-care activities: eating, toileting, grooming, transfer, and ambulation.

Observe and report on the various forms of heat used in the physical therapy department including parafin baths, hydrocolator packs, whirlpool, Hubbard Tank, and lamps.

Present a clinical conference on the patient with arthritis.

Evaluation:

1. The student consistently uses nursing principles which promote good musculoskeletal function in all patients.
2. Given a list of 30 bones, the student will be able to correctly identify 20 of them, using the articulated skeleton.
3. Given a diagram of the body illustrating 20 common muscles, the student will be able to label 15 of them correctly.
4. The student will be able to list three functions of the musculoskeletal system.
5. Given a written quiz on drugs used in musculoskeletal conditions, the student will achieve 70%.
6. The student will be able to demonstrate skillfully and safely transfer activities involving patients with musculoskeletal disabilities.
7. The student will be able to demonstrate ambulation techniques using a cane, a walker, and crutches.

Evaluation (cont.):

8. Given 5 pieces of special equipment used to prevent or correct deformities, the student will be able to demonstrate properly their use.

9. The student will be able to demonstrate attitudes consistent with rehabilitative nursing.

10. The student will be able to perform range of motion exercises skillfully.

11. The student will be able to give safe care to a patient with a cast and/or traction.

12. Given a summary of a patient's condition, the student will be able to develop a nursing care plan which incorporates principles of physical, psychosocial, and rehabilitative care.

13. The student will demonstrate the ability to teach patients and their families adaptations in the performance of self-care activities in home management of disability through discharge planning.

Recommended time
Theory: 25
Practice: 45
Total: 70 hrs.

NURSING THE PATIENT WITH CARDIOVASCULAR IMPAIRMENT I

Introduction: Cardiac diseases affect more people in the United States than any other illness. This unit encompasses normal anatomy and physiology and the more common deviations occurring in the cardiovascular system. Etiology, symptoms, medical management, drug and diet therapy are discussed and appropriate nursing measures are stressed. Preventive measures are emphasized. The student has an opportunity to care for these patients on the clinical unit.

Specific Objectives:

The student will be able to:

221

1. Explain the functions of the circulatory system and describe the four major component parts: heart, blood, blood vessels, and lymph.
2. Trace with accurate explanations, systemic, and pulmonary circulation.
3. List five important factors in the prevention, or at least the delay, of the onset of heart disease.
4. Define common symptoms associated with circulatory impairment.
5. Discuss the major laboratory tests and diagnostic procedures used to determine the presence of heart disease.
6. Describe common short and long-term disorders of the cardiovascular system, including arterial degeneration, blood dyscrasias, varicosities; identify deviations in structure and funcion, discuss symptoms, therapeutic management, related nursing care and rehabilitative therapy.
7. Adapt the general diet to a patient with cardiovascular impairment.
8. List the general classifications of cardiovascular drug therapy and recognize common drugs, dosages, actions, potential side effects and responsibilities in administering these drugs.
9. Demonstrate the ability to care effectively and safely for the patient having common short and long-term circulatory disorders.

References

Written
Baker, Charles E. Physician's Desk Reference

Audio-Visual
Anatomical Charts and Diagrams

References-cont.

Written

ed. 29, Oradell, New Jersey: Medical Economics Company, 1975.

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Chaffee, Ellen E. and Ester M. Greisheimer. Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Falconer, Mary W. etal. The Drug, The Nurse, The Patient, ed. 4, Philadelphia: W.B. Saunders Company, 1975.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1972.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Audio-Visual

Body Torso

Trainex:
1. Care of the Patient with Leukemia
2. Electrolyte Balance
3. Functions of Electrolytes
4. The Normal Heart

Pamphlets: American Heart Association

Objective 1: The student will be able to explain the functions of the circulatory system and describe the four major components parts: heart, blood, blood vessels, and lymph system.

Developing Core

The vital functions of the circulatory system are many and the tragic increase in heart disease indicates the need for the student's sound knowledge of the cardiovascular system.

Student Learning Activities

1. Introduce the circulatory system generally and how it relates to the other systems.

2. Discuss fully the many functions of the cardiovascular system.

Objective 1-continued

Developing Core	Student Learning Activities
	3. Using models and diagrams, explain the anatomy, physiology, and functions of each component part: heart, blood, blood vessels, and lymph system.
	4. Explain the control of the heart beat. Illustrate the conduction system of the heart. Describe normal heart sounds and murmurs. Differentiate between a functional and an organic murmur.
	5. Assign reading material from related textbook and review this information with students. Clarify any questions.
	6. Review systole and diastole and discuss how these phases are related to each other in the four chambers of the heart.
	7. Demonstrate the effects of physical activity on the pulse. Discuss these effects as well as that of emotional disturbances on the circulatory system.
Objective 2:	The student will be able to trace, with accurate explanations, pulmonary and systemic circulation.
It is essential that the student fully understand the normal circulatory process in order that he/she may apply this knowledge in relation to recognizing deviations indicating impairment of the cardiovascular system.	1. Allow students to examine models and diagrams of the circulatory system. Each should practice verbal and written related medical terminology.
	2. View and discuss the Trainex "The Normal Heart."
	3. Discuss and compare pulmonary and systemic circulation.
	4. Illustrate the circulation of blood through the heart and lungs, clearly identifying structures and oxygenated points.
	5. On a body circulatory chart, trace the route of circulation

223

Objective 2-continued

Developing Core	Student Learning Activities
	of blood throughout the body, clearly naming the major blood vessels.
	6. Allow students adequate time to practice circulatory tracing. Assist those having difficulty.
	Objective 3: The student will be able to list five important factors in the prevention, or at least the delay, of the onset of heart disease.
Through proper health education, the development of heart disease can be prevented in many persons; also many of those who already have heart disease can be helped to live satisfying and useful lives.	1. Discuss predisposing factors that are thought to contribute to heart disease. Obtain student responses as to how each contributes to impairment of the cardiovascular system.
	2. Have students bring to class related information and research articles from newspapers and magazines and give "mini" reports to group.
	3. Assign bulletin board display "Prevention of Heart Disease."
	4. Direct students to read, review, and comment on pamphlets from the American Heart Association.
	5. Collect information on associations and community resources concerned with prevention of cardiovascular disturbances.
	Objective 4: The student will be able to define the common symptoms associated with circulatory impairment.
The practical nurse should realize that certain symptoms can be expected to appear in almost every form of heart disease. Frequently, it is he/she	1. Discuss and list body responses indicative of impending cardiovascular impairment. Have students differentiate true circulatory symptoms from those caused by other body disturbances.

Objective 4-contined

Developing Core	Student Learning Activities
who can help persons with undiagnosed heart disease obtain medical attention.	2. Allow students to relate own personal or family experiences about cardiac symptoms and resultant cardiovascular conditions. 3. Direct students to analyze the most common symptoms: dyspnea, edema, angina, color, in relation to the body responses occurring. Discuss what happens when the body can no longer compensate.
	Objective 5: The student will be able to discuss the major laboratory tests and diagnostic procedures used to determine the presence of heart disease.
Explanations of the many laboratory tests and diagnostic procedures performed to determine cardiovascular disturbances will lessen the anxiety and fear that can hinder the recovery of the patient with heart disease. The practical nursing student will be assisting in patient preparation for these tests and should be able to explain what will be done and why it must be done.	1. Describe the most common laboratory tests and why they are used. Include blood count, sedimentation rate, prothrombin time, blood urea nitrogen, cholesterol, enzymes, blood gases, electrolytes, urinalysis. 2. Show and summarize Trainexes: Electrolyte Balance, Function of Electrolyte Balance. 3. Direct students to obtain laboratory tests results from patient's clinical charts and compare these with the book "norms." Have students recognize which cardiac disturbances cause elevated readings in the specific diagnostic tests. 4. Allow students to examine electrocardiogram tracings. Compare a normal tracing with an abnormal one. 5. Discuss common diagnostic procedures utilized in circulatory disturbances. Include chest x-ray, circulation time, central venous pressure, angiography, lymphangiograms. If possible, show examples.

285

Objective 5-continued

Developing Core	Student Learning Activities
	6. Divide class into groups have students practice by role playing; explanations given to patients prior to diagnostic tests.

Objective 6: The student will be able to describe common short and long-term disorders of the cardiovascular system, identify deviations in structure and function, discuss etiology, symptoms, therapeutic management, related nursing care and rehabilitative therapy.

The disease of the blood are numerous and may affect any of the component parts of the blood. One of the most frequently occurring blood dyscraseas is anemia.	1. Review functions and integral components of the blood. 2. Introduce specific diagnostic procedures used to determine blood disorders. Include bone marrow aspiration and capillary fragility test. Have student role-play patient explanations regarding these tests. 3. Define the types of anemias, etiology, and course of each. Discuss common symptoms. 4. Discuss general nursing care of the patients with anemia. Include acuity and chronicity of the disease, fatigue, hemorrhage, infections, diet, drugs, and therapeutic management. 5. List the nursing responsibilities in assisting with a blood transfusion and the observations necessary while blood is being given.
Another blood dyscrasia the practical nurse will encounter with increasing frequency is leukemia.	6. Discuss changes in the composition of blood occurring with leukemia. 7. Show and summarize trainex: Care of the Patient with Leukemia.

Objective 6-continued

Developing Core	Student Learning Activities
	8. Direct students to develop a nursing care plan for the patient with leukemia.
	9. Briefly describe Hodgkin's Disease and Hemophilia.
Objective 7:	The student will be able to adapt the general diet to a patient with cardiovascular impairment.
Most patients with blood disorders should have a diet high in protein, vitamins, and minerals.	1. Review the basic four nutrient groups and have students develop a sample diet.
	2. Discuss food types high in vitamins and minerals, emphasizing those that are excellent sources of iron.
	3. Direct students to list as many high protein foods as they can without references. Assess strengths and weaknesses.
	4. Allow students to respond to the question, "Why should roughage frequently be avoided in the diet of the patient with a blood dyscrasia?"
	5. Direct the students to adapt their sample diets to a high protein, vitamin, and iron diet.
The diet primarily given to patients with cardiovascular diseases is one that is low in sodium content.	6. Discuss the underlying factors necessitating the restriction of sodium in the diet of the patient with a circulatory disturbance.
	7. Allow students to become familiar with low sodium content foods by examining food lists, heart association phamphlets, and additional readings.
	8. Direct students to adapt their sample diets to a low sodium one.

Objective 7-continued

Developing Core	Student Learning Activities
	9. Discuss "disguised" sources of sodium i.e. antacids, food preservatives, etc. and the use of salt substitutes.
	10. Divide class into groups and practice patient education emphasizing food likes and dislikes.
	Objective 8: The student will be able to list general classifications of cardiovascular drug therapy and recognize common drugs, dosages, actions, potential side effects and responsibilities in administering these drugs.
Although cardiovascular disease is the leading cause of death today, research efforts continue to develop more effective drugs used in the control of these disturbances enabling the patient to live a relatively normal life.	1. Discuss and list the general classifications of cardiovascular drug therapy, including cardiac stimulants, depressants, vasodilators, vasoconstrictors, antihypertensives, diuretics, coagulants, anticoagulants, vitamin, and mineral therapy.
	2. Give the class a list of commonly used cardiovascular drugs representing all classifications and have students develop a drug chart showing actions, dosages, potential side effects, and specific nursing responsibilities.
	3. Have students record drugs from clinical charts given to specific patients with circulatory impairment and compare these drugs with textbook drug therapy for that particular disease.
	4. Supervise students to safely administer cardiovascular drugs on the clinical unit. Have students prepare drug cards.
	Objective 9: The student will be able to demonstrate the ability to effectively and safely care for the patient having common short and long-term circulatory disorders.

Objective 9-continued

Developing Core

The student practical nurse should be well aware of the general nursing considerations utilized in caring for patients with cardiovascular impairments as he/she will encounter persons with these disease conditions frequently.

Student Learning Activities

1. Assign students to give total care to patients with common cardiovascular disorders.

2. Discuss plan of nursing care developed by students, including knowledge of underlying scientific principles.

3. Appraise actual nursing care given and individually counsel each student.

Remedial

Assist students to relate drug therapy given with symptoms presented by the patient.

Direct student to compare nursing care given by him/her with textbook description of nursing care measures and determine ways of improvement. Schedule learning conferences with students who need additional assistance.

Enrichment

Direct students to dissect a sheep's heart and identify all structures.

Have students research theories on the circulation of blood prior to Harvey's discovery.

Have students role-play patient teaching in the prevention of heart disease.

Debate Resolved: That the fatalistic attitude toward heart disease prevents persons with early circulatory symptoms from seeking medical attention.

Enrichment-cont.

Direct students to keep a record of 24 hours personal food intake; then calculate sodium content.

A patient with Congestive Heart Failure is to be discharged on Aldactone 25 mg. tid., Lasix 40 mg. qd. and Gitaligen 0.5 mg. qd. Find out the price of these drugs from a local pharmacy and determine the yearly expense for this patient's drug therapy.

Allow a student to observe a cardiac catherization and orally report observations to the class.

Evaluation:

1. The student will be able to describe the anatomy and fully explain the functions of the four major components of the cardiovascular system.

2. The student will be able to differentiate between the systemic and pulmonary circulation by graphically tracing each.

3. The student will be able to list five important factors in prevention of heart disease.

4. Given four common symptoms associated with circulatory disease, the student will be able to explain the cardiovascular impairment occurring.

5. The student will be able to list ten common laboratory tests and diagnostic procedures used to determine the presence of heart disease.

6. The student will be able to describe all aspects of the care of three patients who have common disorders of the cardiovascular system, including arterial degeneration, blood dyscrasias, and varicosities.

7. Given a general diet, the student will be able to readily adapt this to a high vitamin, high iron, a low sodium, and a low cholesterol diet.

Evaluation-continued

8. The student will be able to identify and classify ten commonly used drugs administered to patients with cardiovascular disturbances.

9. By her/his actions on the clinical unit, the student will demonstrate the ability to effectively and safely care for the patient with uncomplicated circulatory disorders.

Recommended time
Practice: 30
Theory: 20
Total: 50 hrs.

NURSING CONCEPTS IN THE CARE OF RESPIRATORY EMBARRASSMENT I

Introduction: Common respiratory diseases present a major loss of time and productivity to students and their families. Since many respiratory diseases are preventable, the practical nurse should be acutely aware of hygienic measures. This unit provides the learning opportunity for the student to obtain the knowledge, skills, and attitudes essential in caring for patients with common respiratory impairment.

Specific Objectives:

The student will be able to:

1. Identify and define the normal structure and function of the respiratory tract.
2. Tell and interpret the use of preventive measures in the maintenance of a healthy respiratory system.
3. List and describe deviations from the normal structure and function occurring in colds, bronchitis, pneumonia, and tuberculosis.
4. Recognize indiscriminate use of cold remedies and inadequate nutrition as precursors of respiratory complications.
5. Demonstrate the knowledge indicated to give safe nursing care to patients with common respiratory diseases.
6. Prepare and administer, in a lab situation or to select patients, drugs used in the treatment of respiratory diseases.
7. Identify and explain the use of protective care procedures for the patient and his family.
8. Recognize the new trends in tuberculosis.
9. Appraise the patient's need for coughing, deep breathing, positioning, and oxygen therapy.

References

Written

Baker, Charles E. Physician's Desk Reference, ed. 29, Medical Economics Company, Oradell, New Jersey, 1975.

Audio-Visual

Anatomical Charts and Diagrams
Examples of X-Rays
Human Body Torso

232

References-cont.

Written

Brody's Programmed Orientation to Medical Terminology, Bowie, Maryland: Robert J. Brody Company, 1970.

Chaffee, Ellen E. and Ester M. Greisheimer. Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Brunner, Lillian Shaltis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Falconer, Mary W. etal The Drug, The Nurse, The Patient, ed. 4, Philadelphia: W. B. Saunders Company, 1971.

Hospital Research and Educational Trust Anatomy and Physiology. The Respiratory System, ed. 2, Bowie, Maryland: Robert J. Brody Company, 1972.

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton. etal Medical Surgical-Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ellen M. and Caroline Bunker Rosedahl.

Audio-Visual

Demonstration Equipment
- Airway
- AMBU Bag

Oxygen gauges, cannula, catheter, and mask

Trainex:
- Infection Control Series
- Oxygen Administration
- Posturol Drainage, Clapping, and Vibration
- Thoracentesis

233

References-cont.

Written

Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Townsend, Carolyn E. Nutrition and Diet Modifications for the Nurse, Albany, New York: Delmar Publishers 1972.

Williams, Sue Rodwell. Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby Company, 1975.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, and III Philadelphia: W.B. Saunders Company, 1972.

334

Developing Core

It is essential that the student understand and can identify the structure and function of the body before progressing to deviations from the norma.

Objective 1: The student will be able to identify and define the normal structure and function of the respiratory system.

Student Learning Activities

1. Locate the respiratory organs and explain their function.

2. Assign selected reference readings.

3. Direct students to take one another's vital signs and record them; note the respiratory rate. Compare these to a student with a cold or minor respiratory illness.

Objective 2: The student will be able to tell and interpret the use of preventive measures in the maintenance of a healthy respiratory system.

Developing Core	Student Learning Activities
It is necessary for students to maintain good health so that as members of the health team, they can teach and interpret hygienic measures to patients and families.	1. From students personal experience relate preventive measures used to avoid upper respiratory infections. 2. Students class project: check these measures with textbook measures of hygiene of the respiratory system. Make a comparative study. 3. As a class project, make a diagram or poster depicting preventive measures that could be utilized in the activities of daily living.

Objective 3: The student will be able to list and describe deviations from the normal structure and function occurring in colds, bronchitis, pneumonia, and tuberculosis.

The common cold is one of the chief causes of absent days due to illness in industry in the U.S. The practical nurse should know the hygiene of respiration to prevent complications which might lead to more serious diseases of the respiratory tract.	1. Develop a chart starting with a cold and show how a respiratory disease, can progress, if untreated. Include causative organisms, transmission modes, preventive measures. 2. List the progressive symptoms as the respiratory organs become involved from upper to the lower respiratory tract. Show the progression from a cold to bronchitis; to pneumonia; and tuberculosis. 3. Use a nurses notes form to chart subjective and objective symptoms showing progression of a cold to bronchitis, pneumonia, and tuberculosis. Use S.O.A.P.I.E. format. 4. Present a group discussion-"Feed a cold; Starve a Fever".

235

Objective 4: The student will be able to recognize indiscriminate use of cold remedies and inadequate nutrition as precursors of respiratory complications.

Developing Core	Student Learning Activities
Poor nutrition and patent medicines often lead to inadequate treatment of common respiratory illnesses.	1. Form a panel discussion and debate the pros and cons of the use of patent medicines. 2. Discuss the relationship of good nutrition in preventing respiratory infections. 3. Obtain student responses to the high vitamin C theory in the prevention of colds.

Objective 5: The student will be able to demonstrate the knowledge indicated to give safe nursing care to patients with common respiratory disease.

Respiratory rate and rhythm change with disease.	1. Direct students to observe a student or a family member with symptoms of a cold, coryza, or bronchitis. A patient situation would be preferable. Discuss appropriate nursing measures to meet the patient's needs as well as the means of preventing spread to other persons. Note any particular respiratory changes. 2. Discuss the preventive measures which might have been employed to prevent contracting the disease. 3. Assign students total care to patients with common respiratory disorders. 4. Appraise plan of care developed by student and actual care given. Compliment strengths. Identify and convey weaknesses to the student.

Objective 6: The student will be able to administer drugs to selected patients with respiratory diseases or prepare these in a laboratory situation.

Developing Core	Student Learning Activities
Prescribed medications are an important part of treatment in respiratory illness.	1. Prepare medicine cards for the following: expectorants, antitussives, antihistamines, antibiotics, and specific drugs used to treat tuberculosis. Discuss uses and precautions prior to administration.

Objective 7: The student will be able to identify and explain the use of protective care procedures for the patient and his/her family.

Protective care is used in preventing the spread of respiratory infections.	1. Demonstrate special health teaching and nursing procedures vital in the care of patients with common respiratory disturbances. Include patient teaching on how to use a kleenex, collection of sputum, performing a nose and throat culture and preparing specimens for laboratory tests. 2. Reinforce by role play the procedure for protective care. Include handwashing, gown, mask, care of contaminated linen, dishes, and waste disposal.

Objective 8: The student will be able to recognize the new trends in tuberculosis management.

New drugs have changed tuberculosis hospitalization and the community reaction toward the disease. X-ray is one of the main diagnostic procedures used to detect tuberculosis of the lung.	1. Direct students to compare, from reading reference books, nursing magazines and periodicals, the changing trends used in treating the tuberculosis patient. Present a controlled discussion on the following: drugs, diet, emotional and rehabilitation support, sputum and x-ray evaluation, role of the Health Department and preventive measures. 2. Evaluate from personal experience preparation for a chest x-ray. Contrast this to a hospital patient experience. Student will prepare and observe a patient for chest x-ray

237

Objective 8-continued

and fluroscopic examination.

Objective 9: The student will be able to appraise the patient's need for coughing, deep breathing, positioning, and oxygen therapy.

Developing Core

Respiratory patients must learn how to cough, deep breathe, and attain the correct position for expectoration. Oxygen therapy is a part of treatment for these patients.

Student Learning Activities

1. Role play in the laboratory the need for oxygen, positioning, coughing, and deep breathing.

2. Create a nurse-patient situation in which class uses terminology in relation to vital sign changes.

3. View and summarize trainex: Oxygen Administration

Remedial

Review literature, trainex, x-rays. Counsel and assist individual students.

Enrichment

Visit or contact T.B. League for literature on respiratory diseases. Report the role of this organizatin to the class. Distribute brochures.

Evaluation:

1. The student will be able to take a pre-test on the respiratory system to determine previous knowledge of the respiratory system.

2. The student will be able to label and describe normal anatomy and physiology of the respiratory system.

3. The student will be able to demonstrate knowledge of deviations from normal function in respiratory illnesses such as a cold, bronchitis, pneumonia, and tuberculous by effectively carrying out safe nursing measures in the care of patients with these or related diseases.

238

Evaluation-cont.

4. On a written test, the student will be able to exhibit by analysis and selection, the knowledge of structure and function, drugs, protective care, diagnostic procedures, diet, and nursing skills.

5. The student will be able to explain and demonstrate safe, effective measures of protective care.

6. The students will complete adequately written assignments and drug care information.

Recommended time
Practice: 30
Theory: 20
Total: 50 hrs.

BASIC CONCEPTS OF NURSING APPLIED TO PATIENTS WITH NEUROLOGICAL SYMPTOMS I

Introduction: This unit is designed to introduce the student to the concepts of neurology. Using epilepsy and CVA; the common disorders affecting the nervous system, the student is acquainted with the principles of nursing the "Unconscious Patient" and the "Patient with Seizures". Methods of prevention of disease is stressed and community resources available to patient and family.

Specific Objectives:

The student will be able to:

1. Describe organs of the nervous system; list and explain their function; list and explain divisions.
2. Define neurology and neurologic nursing; recognize skills required for this speciality.
3. List common causes of disorders and diseases; methods of prevention.
4. List and explain common diagnostic test; describe psychological effect on patient.
5. List classification of drugs affecting the nervous system; identify those commonly used; give purpose and side effects.
6. Identify and explain common symptoms of neurologic disease.
7. Identify and adjust nursing skills to meet the needs of a neurologic patient.
8. Give effective nursing care to a patient with seizures and the unconsciousness patient.
9. Recognize importance of all aspects of rehabilitation.
10. Identify community resources available.

References

Written

Baker, Charles F. Jr. Physician's Desk Reference, ed. 29, Ordelle: Medical Economics, 1975.

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Audio-Visual

Anatomical Chart: Nervous System
Drug Chart
Film: Nervous System

Trainex:
Introduction to Seizure Disorders. Part I and II.

0470

References-cont.

Written

Chaffee, Ellen E. and Ester M. Greishmeimer. Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Falconer, Mary W. etal. The Drug The Nurse The Patient, ed. 4, Philadelphia: W. B. Saunders Company.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Williams, Sue Rodwell. Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby Company 1975.

Audio-Visual

Lumbar Puncture
Nursing Care of Seizure Disorders. Part I and II

Trainex:
Drug Dependency..Stimulants, Depressant, and Psychedelics
Drug Dependency..Narcotics, Analgesics

Objective 1: The student will be able to describe organs of the nervous system; explain functions; list and explain functions of divisions.

Developing Core

The nervous system acts as the communications center in the body. It aids in the control and coordination of other systems.

Student Learning Activities

1. Administer pretest to determine the individual needs of students and adjust assignments.

2. Using anatomical charts have students identify and describe organs of the nervous system and list their functions.

3. List divisions of the nervous system; compare functions of each.

Objective 1-continued

4. Discuss the action of the autonomic nervous system when a person is served their favorite foods.

5. Describe the components of "knee jerk reflex".

6. List and describe the protective structures of the brain and spinal cord.

7. Define and describe cerebrospinal fluid; explain function.

8. Identify results if pressure is applied to the following regions of cerebrum:
   a. frontal lobe
   b. occipital lobe
   c. temporal lobe

9. Show film: Review and summarize the structure and function of the nervous system.

Objective 2: The student will be able to define neurology and neurologic nursing; recognize nursing skills required for this specialty of nursing.

Developing Core	Student Learning Activities
The field of neurologic nursing is an interesting one, offering the nurse opportunity to utilize her powers of observation.	1. Invite nurse specialist in Neurology to discuss with students: "The Challenge of Neurologic Nursing". 2. Discuss and summarize with students the following: a. special knowledge needed in this area of nursing b. adjusted nursing skills c. list methods to increase powers of observation practice these skills.

Objective 3: The student will be able to list common causes of disorders and diseases; select from this list those which frequently affect the nervous system; discuss methods of preventing these diseases.

Developing Core

In order for the nurse to assume her responsibilities for prevention of disease she must first learn the causes of disease.

Student Learning Activities

1. Comprise a list of the general causes of disease; identify those which most frequently produce disorders and disease in the nervous system.

2. Encourage the students to identify measures which may decrease the incidence of these conditions.

3. Report the leading causes of death in the United States and analyze it in relation to neurological disorders and diseases.

4. List measures to prevent disorders of the nervous system.

Objective 4: The student will be able to list and explain the common diagnostic tests; describe psychological effect on patient.

The patient with neurologic disease is often more fearful of diagnostic examinations and tests than other patients.

1. Compare fears of neurologic patient regarding diagnostic tests with those of a cardiac patient.

2. Identify differences and similarities of what or who?

3. Comprise a list, through group discussion, of methods to reduce these fears.

4. Assign student to demonstrate and explain neurologic examination; discuss how practical nurse may assist with this exam.

5. Assign students to report on the following tests including pre and post examination care and the nurses' responsibilities:

Objective 4-continued

a. myelography
b. pneumonencephalography
c. electroencephalogram

6. Assign student to observe lumbar puncture and report to the group including:
   a. position of patient
   b. reaction of patient
   c. questions asked
   d. explain diagnostic significance of cerebrospinal fluid

7. Discuss the following statement: "I don't want that test; I may become paralized".

8. Show Trainex: "Lumbar Puncture" and summarize with group.

Objective 5: The student will be able to list classifications of drugs affecting the nervous system; identify those commonly used; tell the purpose and side effects.

Developing Core

Expected changes from medications usually ordered for patients with neurologic disorders maybe very important to the physician. The nurse must know their actions to report changes promptly.

Student Learning Activities

1. Schedule individual student conferences to review drug cards.

2. Assign student patients receiving these drugs and have students know the patient's diagnosis, purpose of the drug and observe the patient's reaction.

3. Summarize drugs with the following Trainex: Drug Dependency: Stimulants, Depressants, and Psychodelics.

Objective 6: The student will be able to identify and explain common symptoms of neurologic disorders.

244

Objective 6-continued

Developing Core	Student Learning Activities
As part of a Medical treatment for many diseases the student will become aware of the phrase "treat symptomatically". The student should be aware of symptoms resulting from neurologic disorders.	1. Direct students, from assigned references and knowledge of the structure and function of the nervous system, to compile a list of symptoms common to neurologic disorders. 2. Compare with symptoms of other systems of the body; summarize. 3. Explain cause of each symptom.
	Objective 7: The student will be able to identify and adjust nursing skills to meet the needs of a patient with a neurologic problem.
The nurse will face several general problems in nursing the patient with neurologic disorders.	1. Review symptoms of neurologic disorders. 2. Identify through student discussion and list on chalkboard the nursing care problems related to symptoms as: a. lost of motor function b. aphasia c. loss of bladder and bowel control 3. Develop a nursing plan of care in relation to the above; include: a. modifications of hygiene b. special nursing care including skin, eye, mouth care and observations.
	Objective 8: The student will be able to define epilepsy; discuss etiology and predisposing factors; describe seizures and give effective nursing care.
Every one person in fifty in the United States has seizures. This symptom accompanies many medical con-	1. Show Trainex: "Introduction to Seizures" parts I-II. Define epilepsy; discuss predisposing factors; incidence; methods of diagnosing and prevention.

845

Objective 8-continued

ditions. The most common cause of convulsive seizures is epilepsy.

2. From personal experiences have students describe reactions to a seizure.

3. Identify and describe patient's and family's reaction to the diagnosis; list possible reasons for this reaction.

4. Discuss kinds of seizures.

5. Describe nursing assessment during a seizure; discuss nursing support and care following a seizure.

6. Show Trainex: "Nursing Care of Seizure Disorders" parts I and II. Follow by class discussion.

Objective 9: The student will be able to identify good hygiene practices for the epileptic patient; reinforce instruction to the patient regarding medications; list community resources available for the patient and his/her family.

Student Learning Activities

1. Discuss modifications of daily living for a patient with epilepsy including exercise, diet, fluids, and work.

2. Discuss the Ketogenic diet and its use.

3. List the common drugs used in treatment and have students role play instructions given to the patient regarding medications.

4. Direct students to contact the local branch of the National Epilepsy League and investigate services; report to the class.

Objective 10: The student will be able to access levels of consciousness; recognize needs of the unconscious patient; give effective nursing care to the unconscious patient.

Developing Core

The most common dysfunction nervous system is cerebovascular accident. When the patient regains consciousness his condition is a great shock to him/her.

The greatest challenge for the nurse occurs after the patient is past the point of danger. Now the patient must face the slow process of learning to use the abilities that remain and adjust to his limitations.

Student Learning Activities

1. Create a sociodrama depicting having a CVA. Observe student reaction.

2. Discuss: definition; etiology and symptoms; classifications; methods of prevention.

3. Show and summarize Trainex: "Rehabilitation of a Patient with a Stroke".

4. Completely discuss all aspects of nursing during the acute phase including:
   a. nursing assessments
   b. respirations
   c. elimination
   d. body temperature

5. Write a nursing care plan for the patient after the acute phase noting:
   a. levels of consciousness
   b. communication
   c. physical therapy
   d. diet adjusted to level of consciousness

6. "Rehabilitation Begins Immediately". Discuss above list and demonstrate methods of implementing this.

7. Have speech therapist attend conference with students.

8. Accompany patient to physical therapy department and discuss observation with group.

Objective 10-continued

9. Write a nursing care plan for the patient with a C.V.A. encompass all aspects of patient care, including:
   a. adjustments of nursing care
   b. rehabilitation
   c. activities of daily living

Remedial

1. Schedule individual teacher-student conferences.

2. Have student outline textbook chapters related to theory.

3. Repeat demonstrations of nursing procedures.

4. Second showing and summary of Trainex films.

5. Review test questions, after test is given.

Enrichment

Trace flow of a drop of cerebrospinal fluid from lateral ventricles to the subarachnoid space.

Select student to visit a neurologic unit and report to the group the purpose and physical facilities of the unit. Also the preparation of the nursing staff.

Assign student to observe brain scan or cerebral angiography and share observation with the class.

Evaluation:

1. The student will be able to describe and list the functions of the nervous system.

2. The student will be able to define neurologic nursing.

3. Given a list of causes of disease, the student will be able to identify those most commonly affecting the nervous system.

Evaluation-cont.

4. The student will be able to classify the drugs affecting the nervous system; giving five examples of each.

5. The student will be able to completely define seizures, types and causes. The student will describe and give effective nursing care of the patient with seizures.

6. The student will be able to list and describe the levels of consciousness.

7. The student will be able to list the needs of the unconscious patient and give effective nursing care.

8. The student will be able to name three community agencies available to patients and his/her family confronted with neurologic disorders.

9. The student will be able to explain and illustrate prevention of C.V.A and epilepsy.

Recommended time
Practice: 16
Theory: 12
Total: 28 hrs.

THE IMPACT OF AUDIO-VISUAL IMPAIRMENT ON THE INDIVIDUAL. I

Introduction: The student practical nurse must have a sound understanding of the sensory system, particularly the eye and ear, in order to assist effectively in the promotion of eye and ear health and the prevention of impairment in these vital senses. Although the emphasis of this unit is on preventive measures, general nursing care, special nursing procedures or common disease conditions are discussed.

Specific Objectives:

The student will be able to:

1. Recognize the senses and the sensory mechanism.
2. Identify and describe the structures of the ear and discuss the function of each using related terminology.
3. Trace the process that occurs with a sound wave activating the tympanic membrane to the registration of sound in the brain.
4. Identify and describe the structures of the eye and discuss the function of each using related medical terminology.
5. Trace the path of a light ray from the outside of the eye to the brain.
6. Explain the essential factors in the prevention of eye and ear impairment.
7. Explain and assist with common diagnostic tests used to determine impairment of hearing and vision.
8. Describe the disease course, therapeutic management, special nursing procedures and related nursing care of the patient with inflammatory disorders and injuries of the eye and ear.
9. Summarize the drug therapy employed in conditions of the ear and eye including action, dosage, potential side effects, and nursing reponsibilities.
10. Demonstrate the ability to perform effective and safe care to patients with inflammatory disorders and injuries of the ear and eye.

References

Written

Baker, Charles E. Physician's Desk Reference

Audio-Visual

Films:
Source: Board of Education Film Library

250

References-cont.

Written

ed. 29, Oradell, New Jersey: Medical Economics Company, 1975.

Burke, Shirley R. Human Biology in Health and Disease, New York: John Wiley and Sons, Inc., 1975.

Falconer, Mary W. etal The Drug, The Nurse, The Patient, ed. 5, Philadelphia: W.B. Saunders Company, 1974.

Memmler, Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal. Medical Surgical Nursing ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ella M. and Caroline Bunker Rosedahl. Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Eyes and Vision
Eyes and Their Care
The Ears and Hearing
Our Wonderful Ears and Their Care

Trainex:
- Emergency Eye Care
- Anatomical Charts
- Diagnostic Equipment
  - Ophthalmoscope
  - Otoscope
  - Snellen Chart

Objective 1: The student will be able to recognize the senses and the sensory mechanism.

Developing Core

The sensory system contains the

Student Learning Activities

1. Define a sense and list each sense.

251

Objective 1-continued

Developing Core	Student Learning Activities
structures that inform the person of the state of things in his/her environment. Any defect in the sensory structures, pathways to the brain or the brain itself causes a defect in the sensory system.	2. Differentiate between general and special senses. 3. Define gustatory, olfactory, adaptation, tactile, referred pain. 4. Discuss special sense organs and the receptors of each. Include taste, smell, hunger and appetite, thirst. 5. Divide class into groups and have them practice identifying the location of the most sensitive taste buds in relation to the four tastes-sweet, sour, salty, and bitter. 6. Discuss the general sense organs and the receptors of each. Include pressure, temperature, touch, pain and balance. Further discuss adaptation found in the temperature sense. Have students reason why the pain sense does not have this characteristic.
	Objective 2: The student will be able to identify and describe the structures of the ear and discuss the function of each using related medical terminology.
The ear is an especially adapted apparatus for collecting sound waves from the air and transmitting this energy to the brain for interpretation as sound. There are two sets of receptors in the ear: one set is concerned with hearing and the other with position sense.	1. Present the main functions of the ear. Include purpose other than appropriate glassesholders, earring wearing, or for the convenience of boxing. 2. Illustrate the major structures of the ear. List these structures as to their location in the three main sections of the ear. Practice pronounciations with students. 3. Explain function of the structures and allow students to examine charts, diagrams, and models of the ear.

252

Objective 2-continued

Developing Core	Student Learning Activities
	4. Have students read assigned material in textbook. Distribute a diagram of the ear and have them label the structure without the use of reference material.
	Objective 3: The student will be able to trace the process that occurs with a sound wave activating the tympanic membrane to the registration of the sound in the brain.
Hearing is the sense by which sounds are appreciated and position sense refers to the orientation of the head in space and the movement of the body through space.	1. Hearing is called the watchdog of the senses. Discuss this statement with the class. Emphasize the reason for health personnel to remember this fact.
	2. Define: frequency, pitch, intensity, cps, dB. Describe the nature of sound. Clarify concept by using examples.
	3. Discuss balance and equilibrium.
	4. Using an ear model or chalkboard diagram, identify the process of hearing by tracing sound energy through the hearing apparatus to the brain for interpretation.
	5. Divide class into groups and allow them to practice this process. Correct mispronounciations and incorrect sequence.
	6. Show and summarize film: <u>The Ears and Hearing</u>
	Objective 4: The student will be able to identify and describe the structures of the eye and discuss the function of each using related medical terminology.

253

Objective 4-continued

Developing Core	Student Learning Activities
The eye is the sense organ which is stimulated by light rays. There are many structures involved in the sensation of seeing; however, the basic units for vision are the retina, optic nerve, and the visual center in the brain.	1. Using the chalkboard illustrate the sensory mechanism for vision. Label and define each structure. Give students time to practice pronounciations and purposes to the eye parts. 2. Allow students to examine models and diagrams of the eye and locate and identify the structures. Be available to clarify questions or correct errors. 3. Require students to read related assignment in textbook. Distribute diagrams of the eye and have students label the structures without the use of references. Pay attention to spelling.

Objective 5: The student will be able to trace the path of a light from the outside of the eye to the brain.

The mechanism for vision is often compared with a camera because of the corresponding functions of many of the parts. There is, however, one gross difference in that the Kodak camera records one image and the human camera registers two images.	1. Direct students to compare the structures of the eye with that of a camera. Contrast the differences. 2. Define: accommodation, adaptation, binocular vision. 3. Discuss in detail the receptors for vision, the cone and rod cells of the human retina. Explain the chief difference of the seeing apparatus of the human and an animal. 4. Using a chalkboard diagram or an eye model, identify the path of light from the outside of the eye to the brain for interpretation. 5. Divide class into groups and allow them to practice this process verbally. Correct mispronounciations and errors in sequence.

454

Objective 5-continued

Developing Core	Student Learning Activities
	6. Show and summarize film: Eyes and Vision
	Objective 6: The student will be able to explain the essential factors in the prevention of ear and eye impairment.
Hearing is one of the chief means of communication and is necessary for the person's reality concept.	1. Discuss the great advantages of having adequate sight and hearing. Allow students to respond to what an absence of either or both would mean to an individual.
Vision is essential in countless experiences that make life enjoyable and meaningful. These two senses are probably the most priceless possessions of man and every effort should be made to develop, protect, and preserve them.	2. Have students relate family or personal experiences in an ear or eye impairment.
	3. List ways of promoting eye and ear health and preventing impairment of these important senses.
	4. Explain the role of the student practical nurse in health education in the care of the ears and eyes.
	5. Define: orthopist, optician, optometrist, oculist, ophthalmologist.
	6. Stress the recognition of early signs of ear and eye disorders and the need to seek medical attention.
	7. Show and summarize films: Eyes and Their Care; Our Wonderful Ears and Their Care

Objective 7: The student will be able to explain and assist with common diagnostic tests used to determine impairment of hearing and vision.

Developing Core

Audio-visual testing equipment ranges from the simple to the sophisticated.

Public health education has resulted in hearing and visual screening tests being administered routinely throughout the United States. Undoubtedly the practical nurse, at some time in his/her career will be asked to assist in these tests.

Student Learning Activities

1. Discuss common diagnostic texams used to test hearing. Include watch or whisper test, tuning fork, audiometric testing, and insufflation.

2. List and interpret decibel ranges. Show examples of normal and abnormal audiograms.

3. Explain noise pollution. Talk about ways of lessening or eliminating it.

4. Allow students to examine a aural speculum and otoscope.

5. Discuss common diagnostic exams used to test vision. Include vision screening tests-Snellon and ishihara charts, fluorescein dye, refractive studies. Allow students to practice performing and charting these tests.

6. Demonstrate refraction by placing a straw to partially filled glass of water and allow students to observe the apparent bending of the straw when it meets the water.

7. Define: emmetropia, ametropia, myopia, hyperopia, presbyopia, and astigmatism, and strabismus.

8. Allow students to examine an ophthalmoscope and tonometer and discuss function of each.

9. Mention the purpose of the slit lamp exam and perimetry. Discuss tunnel vision.

10. Give students topics on eyeglasses, sunglasses, tinted glasses and contact lenses, (including all aspects; types, cost, care) and then form a panel discussion to present

256

Objective 7-continued

this information.

Objective 8: The student will be able to describe the disease course, therapeutic management, special nursing procedures, and related nursing care of the patient with inflammatory disorders and injuries of the eye and ear.

Developing Core	Student Learning Activities
Any of the eye and ear structures can be affected by infection or inflammation due to microorganisms, mechanical irritation, or allergic reactions.	1. Reinforce preventive measures. 2. Discuss common traumas of the eye and ear and general emergency care. Mention sympathetic ophthalmia. 3. Show and summarize trainex: <u>Emergency Eye Care</u> 4. Vocabulary list: hordeola, chalazion, conjunctivitis, blepharitis, keratitis, mastoiditis, labyrinthitis, myringotomy, impacted cerumen, enucleation. 5. Direct students to develop a nursing care plan for acute otitis media. Stress patient teaching to prevent this condition from becoming chronic. 6. Generalize care given to patients with inflammatory conditions of the eye and ear. 7. List eye and ear injuries and have students explain his/her responsibility in each. Clarify or correct any weak or faulty responses. 8. Identify purposes and demonstrate on chase doll, special nursing procedures associated with eye and ear conditions. Include compresses and irrigations allow students to return demonstration and conclude special facts to remember.

257

Objective 9: The student will be able to summarize the drug therapy employed in conditions of the eye and ear including action, dosage, potential side effects, and nursing responsibilities.

Developing Core

Some of the most frequently encountered diseases that annoy the human body affect the eyes and ears and yet the public carelessly considers these disorders minor. It must be remembered that these "minor ailments" can lead to irreparable damage to vital sense organs. Proper treatment must be sought early. Drug therapy plays a large and important role in preventing complications in eye and ear conditions.

Student Learning Activities

1. Discuss and list the general classifications of eye and ear drug therapy including miotics, mydriatics, cycloplegics, and antibiotics, ointments. Stress precautionary measures.

2. Distribute to the class a list of commonly used eye and ear drugs and have students develop a drug chart showing actions, dosages, potential side effects, and specific nursing responsibilities.

3. Demonstrate the procedure for administering eyedrops and ointments, explaining important aspects.

4. Repeat the above for eardrops and ointments.

5. List key points in these procedures and have students analyze underlying scientific principles involved in each.

Objective 10: The student will be able to demonstrate the ability to perform effective and safe care to patients with inflammatory disorders and injuries of the eye and ear.

The majority of patients with inflammatory conditions and injuries of the eye and ear are treated in the emergency room and on an outpatient basis.

Occasionally the student practical nurse will care for a patient

1. Assign students to give total care to patients with common eye and ear disorders or uncomplicated injuries.

2. If the above experience is not available seek patients who may have an eye or ear disorder secondary to their primary reason for hospitalization.

3. Supervise students to safely administer eye and ear drops

258

with a specific illness who also has a coexisting disease of the eye and ear.

and/or ointments on the clinical unit. Have students prepare drug cards.

4. Appraise care plan developed by students and evaluate actual nursing care given.

5. If the clinical facility has an eye clinic, investigate the possibility of student observations.

Remedial

Check students notes and drug charts; assist student in concluding important factors to be remembered.

Enrichment

Have students ponder the philosophical question-"If a huge tree in the forest crashes to the ground and no human is about, is sound produced?"

Allow group of more advanced students to dissect a sheep or beef eye.

Have students respond to the question, "Is there any harm in using Visine everyday?"

Have student accompany a patient to the ophthalmologist for an "eye consult" or to the otologist for an "ear consult". Share experience with the class.

Evaluation:

1. The student will be able to list the general and special senses and define the receptors of each one.

2. Given a diagram of the ear, the student will be able to locate and label the structures as well as explain the function of each.

Evaluation-cont.

3. The student will be able to trace in proper sequence the hearing sensory mechanism.

4. Given a diagram of the eye, the student will be able to locate and label the structures as well as explain the function of each.

5. The student will be able to trace in proper sequence the seeing sensory mechanism.

6. The student will be able to explain eight essential factors in the prevention of eye and ear impairment.

7. The student will be able to explain seven major diagnostic tests used to determine impairment of hearing and vision.

8. The student will describe the disease course; therapeutic management; special nursing procedures, and related nursing care of the patient with inflammatory disorders and injuries of the eye and ear.

9. The student will be able to identify and classify five commonly used drugs administered to patients with eye and ear disturbances in addition to properly instilling eye and eardrops.

10. By her actions on the clinical unit, the student will be able to demonstrate the ability to effectively and safely care for the patients with common eye and ear disorders.

200

Recommended time
Theory; 20
Practice: 30
Total: 50 hrs.

CONCEPTS BASIC TO THE CARE OF PATIENTS WITH COMMON GASTRO-INTESTINAL DISTURBANCES I

Introduction: Gastroenteritis is responsible for more absences from work than any other disease condition. In this unit, the student realizes how important this system is the maintenance of normal balance within the body and how to provide effective care to patients having short-term, uncomplicated digestive disturbances.

Specific Objectives:

The student will be able to:

1. Identify, locate, and describe the major and accessory organs of the gastrointestinal system as well as explain the function of each, using related terminology.
2. Summarize the functions of enzymes in digestion by: the major enzymes, stating where they enter the digestive tract, and indicating the action, of each.
3. List the most common digestive symptoms, utilizing proper medical terminology and related nursing measures effective in dealing with these symptoms.
4. Conclude the importance of maintaining an acid-base balance within the body.
5. Identify and assist with the common diagnostic procedures used to determine the presence of a gastrointestinal impairment.
6. Describe the disease course and related nursing care of patients who have common disorders of the gastrointestinal tract including appendicitis, gastroenteritis, hemmorrhoids, and hernias.
7. Demonstrate the ability to provide effective and safe nursing care to patients who have uncomplicated, short-term gastrointestinal disturbances.
8. Adapt a general diet to a modified diet for the patient with a specific gastrointestinal disturbance.
9. Define the gastrointestinal drug therapy classifications and identify the commonly used drugs in each classification including actions, dosage, potential side effects and the responsibilities involved in administering these drugs.

References

Written

Baker, Charles E. Physician's Desk Reference

Audio-Visual

Anatomical Charts

References

Written

ed. 29, Oradell, New Jersey Medical Economics Company, 1975.

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton et al. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1972.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Audio-Visual

Body Torso
Diagrams
Trainex:
- Acid-Base Balance
- Body's Regulations of pH

Preparation Procedures

262

Objective 1: The student will be able to identify, locate, and describe the major and accessory organs of the gastrointestinal system as well as explain the function of each using related medical terminology.

Developing Core

The efficient machinery the body uses to process food for supplying nourishment to body cells is called the gastrointestinal system.

Student Learning Activities

1. Discuss the relationship of the gastrointestinal system to the other systems of the body.
2. Using a model of the human torso, locate and describe the digestive organs.
3. Distinguish between the main organs and the accessory organs of the digestive system.
4. Discuss the functions of individual gastrointestinal organs.

Objective 1-continued

Developing Core	Student Learning Activities
	5. Have students examine charts and diagrams of the gastro-intestinal organs.
	6. Using a chart, point to various organs and have students identify specific organs, practicing saying and writing related medical terminology.
	Objective 2: The student will be able to summarize the functions of enzymes in digestion by listing the major enzymes, stating where they enter the digestive tract, and indicating the action of each.
Digestion is a process which combines chemical and mechanical means to provide nourishment for the body.	1. Differentiate between chemical and mechanical digestion. Give examples of each.
The chemicals that accomplish most of the digestive process are called enzymes.	2. Review chart prepared from normal nutrition class involving digestive secretions, enzymes, and actions.
	3. Prepare a diagram illustrating the chemical and mechanical breakdown of various foods. Working in teams, choose different foods and trace the process for each. Describe the process of absorption.
	4. Trace, graphically, the digestive process of a piece of meat, containing fat from its entry into the mouth through the various gastrointestinal organs.
	5. Examine the nine major functions of the liver and relate each in the digestive and absorption process.

963

Objective 3: The student will be able to list the most common digestive symptoms utilizing proper medical terminology and demonstrate effectiveness in dealing with these symptoms.

Developing Core

At some time in their lives, most persons experience gastrointestinal disturbances. Generally these conditions are of short duration and may not require medical attention.

Student Learning Activities

1. Discuss common digestive complaints and have students relate, informally, experiences in one's own family which were related to the gastrointestinal system. Determine possible causes of disturbances.

2. Have students match common terms with appropriate medical terminology. Practice pronounciations.

3. List and discuss important factors in the prevention of digestive disturbances.

4. Role play a patient with specific digestive complaints, have students seek pertinent information and decide when medical attention should be sought for each common symptom.

Objective 4: The student will be able to conclude the importance of maintaining an acid-base balance within the body.

In order that all the normal body processes may take place; a certain proportion of acids and bases must be maintained. Electrolytes account for most of the osmotic pressure of the body fluids thus establishing great importance in maintaining acid-base balance within the body. The student must know how normal fluid and electrolyte balance is maintained if he/she is to assist in this vital part of medical management.

1. Present a lecture on normal fluid balance and normal electrolyte balance. Explain pH.

2. Define intracellular, interstitial, and intravascular.

3. Discuss the normal exchange of body fluids and electrolytes. Explain loss and replacements.

4. Have students relate from personal experience what symptoms they observed during vomiting or severe diarrhea.

5. List common causes for fluid and electrolyte imbalances.

Objective 4-continued

Developing Core	Student Learning Activities
	6. View and summarize trainex: Acid-Base Balance Body's Regulation of pH
	7. Describe the general nursing care related to fluid and electrolyte balance including loss determination and replacement provision.
	Objective 5: The student will be able to identify and assist with the common diagnostic procedures used to determine the presence of a gastrointestinal impairment.
There are many common diagnotic and laboratory tests available to help determine the presence or absence of gastrointestinal disease.	1. Present to the students each diagnostic test including name, purpose, and preparation. Have students analyze the reasons for the specific preparations. Include Ba. Enema, G.I. series, endoscopy procedures, gastric analysis, tubless gastric analysis, and cholecystogram.
	2. Allow students to ~~view~~ examine sample X-rays of the entire gastrointestinal tract. Include both normal and abnormal examples.
	3. Obtain from cooperating hospital examples of patient prep procedures and allow students to role play patient-nurse relationships both pre and post examinations.
	4. Direct students to read and review charts of patients with suspected or confirmed gastrointestinal disease.
	5. Discuss emotional support for the patient awaiting results of diagnostic procedures.

265

Objective 6: The student will be able to describe the disease course and related nursing care of patients who have common disorders of the gastrointestinal tract including appendicitis, gastroenteritis, hemorrhoids, and hernias.

Developing Core

Nursing needs of patients with gastrointestinal disturbances can be categorized in three areas: prevention of anorexia, nausea and vomiting; maintenance of normal functioning of the total body; and providing for comfort and hygiene of the patient.

Student Learning Activities

1. Direct student to read related material in assigned textbook. Discuss this information in general and answer or clarify students questions.

2. Discuss the major aspects of selected common gastrointestinal disorders-appendicitis, gastroenteritis, hemorrhoids and hernias. Emphasize general nursing measures.

3. Assign students to review charts on patients with common gastrointestinal conditions and compare findings with textbook description.

4. Initiate a medical terminology bee. Give small prize to winner (uniform companies often have pocket sewing kits).

Objective 7: The student will be able to demonstrate the ability to provide effective and safe nursing care to patients who have uncomplicated short-term gastrointestinal disturbances.

The student practical nurse encounter many patients with disturbances of the gastrointestinal tract. He/she should realize that a great number of these patients are awaiting the results of diagnostic procedures and require emotional support in their apprehension of the not yet determined diagnoses.

1. Assign students total patient care to patients with common gastrointestinal symptoms or disorders.

2. Review nursing care plan developed by student. Discuss the criteria by which he/she can evaluate the effectiveness of her nursing care.

3. Observe students actual nursing care given to his/her assigned patients.

266

Objective 7-continued

Developing Core	Student Learning Activities
	Evaluate communication skills, interpersonal relationships, reporting and recording. Offer suggestions.
	Objective 8: The student will be able to adapt a general diet to a modified diet for the patient with a specific gastro-intestinal disturbance.
Diet is an integral part in the treatment of many gastrointestinal disorders. The prime purpose of therapeutic diets in these conditions is to avoid foods which irritate the digestive tract.	1. Review with the class, normal nutrients, the basic four, and examples of each. Then have each student develop a one day normal diet plan.
	2. Have students recall personal or family experiences of diet therapy for digestive conditions.
	3. Discuss therapeutic diets as related to patients with digestive disorders. Include the bland, high fiber, and low-residue diet explaining the purpose and examples of foods particular to each.
	4. Allow students to examine "foods permitted" lists for each diet. Then practice adapting the general diet to a modified one.
	5. Working in groups of two, have students interview one another as to food "likes" and "dislikes" and adapt each G.I. diet accordingly.
	Objective 9: The student will be able to define the gastrointestinal drug therapy classifications and identify the commonly used drugs in each classification including actions, dosage, and potential side effects and the responsibilities involved in administering these drugs.

Objective 9-continued

Developing Core

The majority of diseases of the gastrointestinal tract can be treated effectively by drug therapy.

Of all the "over the counter" drugs sold today, the gastrointestinal group is probably the most widely self prescribed and abused.

Student Learning Activities

1. Describe general classifications of drug therapy used in disturbances of the G.I. system and examples of each including antacids, digestants, antispasmodics, cathartics, fecal softeners, and antidiarrheics.

2. Give students a list of commonly used G.I. drugs and have them complete chart on classification, dosage, action, side effects, and nurse's responsibility.

3. Review the G.I. drugs with students on the clinical unit using the Kardex.

4. Have students debate resolved: That individuals who habitually overeat can lessen problems of digestion by the regular use of antacids.

5. Obtain students answers to patient question of "Nurse, what's a good laxative?"

6. Illustrate by examples the dangers of self prescribed medications.

Remedial

Review students notes and assist them in eliciting essential facts.

Recognize weaknesses of individual students and summarize essential factors of electrolyte balance and its importance.

Review students notes. Assess students knowledge and assist with apparent weaknesses.

Remedial-cont.

Give Kardex test in order to assess students knowledge. Compliment strengths. Assist with weaknesses.

Enrichment

Have students dissolve cracker in their mouth until the digestive process begins. Note observations. Experiment with hydrochloric acids upon marbilized meat and milk. Record observations.

Give students a list of electrolyte imbalances ie: sodium deficit and excess, potassium depletion and excess, calcium deficit and excess, and have them research causes, symptoms, and therapeutic action.

Allow students to accompany patient who is having a digestive tract procedure to the x-ray department. Discuss observations.

Select student to care for a patient with appendicitis and observe an appendectomy and report observations to class.

Have selected students teach a patient who is ordered a therapeutic gastrointestinal diet.

Ask students to watch T.V. commercials for a specific time interval and compile the number and type of gastrointestinal patent medicines advertised. Share findings with entire class.

Evaluation:

1. The student will be able to pass a written exam on the anatomy and physiology of the gastrointestinal system.

2. The student will be able to identify the major enzymes and explain their relationship to the process of digestion.

3. Given a list of common digestive symptoms, the student will be able to discuss nursing measures effective in alleviating these discomforts.

4. The student will be able to summarize the importance of maintaining an acid-base balance within the body.

5. Given ten common gastrointestinal diagnostic procedures, the student will be able to identify the purpose of each and discuss his/her role in assisting in the patient preparation of these tests.

6. Using proper medical terminology, the student will be able to discuss major aspects in the disease course, medical management and related nursing care for patients who have appendicitis, gastroenteritis, hemorrhoids, and hernias.

7. The student will be able to demonstrate the ability to provide effective and safe nursing care to patients who have short-term, uncomplicated gastrointestinal disturbances.

8. The student will be able to adapt a general diet to a bland, high fiber, and low-residue diet.

9. Given a list of fifteen commonly used gastrointestinal drugs, the student will be able to classify them properly and discuss the actions, dosage, potential side effects, and responsibilities involved in administering these drugs.

Recommended time
Practice: 44
Theory: 25
Total: 69 hrs.

NURSING THE PATIENT WITH GENITO-URINARY DYSFUNCTION I

Introduction: The renal system must function precisely so that the body will remain in good health. In the male, several organs of reproduction are also part of the urinary tract. In this unit the most common disorders of the genito-urinary tract are presented to enable the student practical nurse to give safe, effective care to these patients.

Specific Objectives:

The student will be able to:

1. Describe and identify the normal structure and function of the urinary system.
2. Describe the common deviations from the normal structure and function of the urinary system, then discuss these in relationship to the kidneys and the circulatory system.
3. Demonstrate the ability to catheterize a patient of the same sex as the nurse using the necessary safety precautions and demonstrate the care of the catheter after insertion.
4. Identify the selected nursing procedures employed in diagnosing urinary disorders and demonstrate the ability to perform these.
5. Describe the means of maintaining good hygiene to prevent urinary tract infections.
6. Discuss the medical and nursing care of patients with renal calculi and demonstrate the ability to give safe, effective nursing care of these patients.
7. Evaluate the need for patient education upon discharge from the hospital relative to diet, fluid intake, and medications.
8. Identify the causes of urinary tract infections and discuss preventive measures.
9. Explain the function of the male and female reproductive organs and the hormonal influence in the production of secondary sex characteristics.
10. Describe the production and role of sperm and seminal fluid in reproduction.
11. Describe the function of the ovaries, fallopian tubes, uterus, and breasts in reproduction; menstruation; menarche; and climateric.
12. Assist with the routine gynecological exam; including the pap and vaginal smear.
13. Demonstrate the ability to assist the patient with a douche and perineal care.
14. Explain common medical and nursing care in disorders of the female reproductive system and demonstrate the ability to assist or give nursing care to meet the patients physical and emotional needs.

References

Written

Baker, Charles E., Physician's Desk Reference ed. 29, Medical Economics Company, Orandell, New Jersy.

Brady's Programmed Orientation to Medical Terminology Bowie, Maryland: Robert J. Brady Company, 1970.

Chaffee, Ellen E. and Ester M. Greiheimer. Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Brunner, Lillian Sholtis and Doris Smith Suddarth, Textbook of Medical Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Falconer, Mary W. etal. The Drug The Nurse The Patient, ed. 4, Philadelphia: W.B. Saunders Company.

Hospital Research and Educational Trust Anatomy and Physiology The Respiratory System, ed. 2, Bowie, Maryland: Robert J. Brady Company, 1972.

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ellen M. and Caroline Bunker Rosdahl, Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Anatomical Charts and Diagrams
Body Torso

Trainex: Female and Male Catherization
Cancer of the Uterus

Films: Source: American Cancer Society
"Self-Breast Examination"
Source: Merrell National Laboratories
Film Library
1269 Gest Street
Cincinnati, Ohio 45203
"Abdomino-Vaginal Approach to Stress Incontinence"
"Laparoscopy: The View Within"

Demonstration equipment:
Trays: Catheter
Catheter irrigation
Vaginal irrigation
Clean catch collection bottle
Foley catheter
Urine strainer

References-cont.

Written

Townsend, Carolyn E. Nutrition and Diet Modification for the Nurse, Albany, New York: Delmar Publishers, 1972.

Williams, Sue Rodwell, Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby's Company, 1945.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, III, Philadelphia: W.B. Saunder's Company, 1972.

Objective 1: The student will be able to describe and identify the normal structure and function of the urinary system.

Developing Core	Student Learning Activities
The kidneys and their drainage structure are the vital parts of the urinary tract. The health of these structures is important to life.	1. From previous knowledge, have students draw a simple diagram of the urinary tract and label the major organs. 2. Compare this to an anatomical chart; textbook model; correct and enlarge or enhance diagram to include: renal fascial, hilum, cortex, and medulla. 3. Identify the functions of the individual organs. 4. Class project-make a collage of organs of the urinary tract.

Objective 2: The student will be able to describe the common deviations from the normal structure and function of the urinary system. Discuss these in relationship to the kidney and circulatory systems.

The kidneys are responsible for extracting inorganic salts from the	1. List the characteristics of normal urine; abnormal components; and the amount of normal daily excretion.

273

Objective 2-continued

circulating blood, and regulating the water content and electrolyte composition of the body fluids.

2. Discuss what is meant by the relationship of the kidneys to normal circulation and to normal hemostasis.

3. Have students record individual fluid intake and output for a twenty-four hour period, then compare their results with the "norm".

Objective 3: The student will be able to demonstrate the ability to catheterize a patient, of the same sex as the nurse using the necessary safety precautions, and demonstrate care of the catheter after insertion.

Developing Core

Sterile technique is necessary to insure the patient's safety and to protect him/her from infection during and after catheterization.

Student Learning Activities

1. Review structure and function of male genito-urinary system and female urinary system.

2. Discuss reasons for catheterization.

3. Demonstrate catheterization procedure stressing underlying scientific principles.

4. Demonstrate the ability to catheterize a chase doll using aseptic technique. Follow up by charting this procedure.

5. Assign students to demonstrate the ability to transfer this technique to a patient situation and do appropriate charting.

6. Demonstrate catheter irrigation. Reinforce principles, clarify questions.

7. Assign students to demonstrate ability to transfer the catheter irrigation procedure to a patient and chart results.

274

Objective 3-continued

8. Discuss the means of preventing urinary tract infections following catheterization and review special catheter care. Elicit from class answers to "Why do many physicians prefer clean catch today?"

Objective 4: The student will be able to identify the selected nursing procedures employed in diagnosing urinary disorders and demonstrate the ability to perform these.

Developing Core	Student Learning Activities
Most patients are embarrassed and fearful of having urologic tests. The nurse should therefore endeavor to allay these feelings by being able to discuss tests and carry out procedures without causing anxiety or embarrassment.	1. Demonstrate and describe specific gravity and transfer this technique to the hospital situation. Use hospital procedure manual. 2. Demonstrate and discuss the Bili-Labstix and transfer this technique to the hospital. Use hospital Labstix. 3. Class discussion-"What would an I.V.P. reveal?" What is a flat plate? What is a cystoscopy, and retrograde pyleogram? What is a P.S.P.? 4. Allow students to examine hospital patient explanation forms for interpretation. Using role play, practice patient explanations for each diagnostic procedure.

Objective 5: The student will be able to describe the means of maintaining good hygiene to prevent urinary tract infections.

Prevention of infections and use of sterile technique in catheterization procedures are important aspects of maintaining good hygiene.	1. Describe the nursing function for each procedure. 2. Role play: instruction of a patient for a clean catch and culture and sensitivity.

275

Objective 5-continued

3. Class discussion-Emotional impact of urologic disease on the male and female.

4. Panel discussion: 1. Public education in hygiene and health. 2. Early detection of urinary disease. 3. Encouragement of prompt and adequate medical treatment of systemic or upper respiratory diseases. 4. Catheter contamination and sterile, non-traumatic technique in catheterization.

Objective 6: The student will be able to discuss the medical and nursing care for patients with renal calculi and demonstrate the ability to give safe, effective nursing care to these patients.

Developing Core	Student Learning Activities
The causes for formation of renal calculi are not clearly known but there are nursing interventions which can be employed to safeguard their formation.	1. Tell reasons for calculi formation. How can calculi be prevented? List preventive means. 2. Direct students to screen urine for stones. 3. Role play using chase doll, various means of applying dressings over operative site-flank kidney incision in order to keep patient dry. 4. Discuss hemorrhage signs and symptoms. List preventive and emergency care. 5. Discuss emotional support and diversional therapy for this patient. 6. Tell ways of detecting paralytic ileus postoperatively. 7. Describe appropriate fluids and diet for these patients. Seek underlying reasons.

276

Objective 7: The student will be able to evaluate the need for patient education upon discharge from the hospital relative to diet and fluid intake and medication.

Developing Core	Student Learning Activities
Since renal calculi are very apt to recur, prophylactic measures are important to maintenance of good health.	1. List and discuss prophylactic measures-include food and liquid intake. 2. Discuss diet needs relating to medication. 3. Present acid ash and alkaline ash diet. Direct students to use hospital diet manual and plan a menu for a patient. 4. Use textbook to find medications used to maintain acidity and alkalinity of urine and write medicine cards.

Objective 8: The student will be able to identify the causes of urinary tract infections and discuss the preventive measures.

Cystitis is a common urinary tract infection particularly prone to occur more frequently in women.	1. Have student develop a poster identifying sources of infection. 2. Role play an outpatient situation with a complaint of cystitis, listing all of the symptoms. 3. Allow student to practice health teaching the patient on relief of symptoms before doctors appointment to make her/him comfortable. 4. Compare the symptoms and preventive measures to textbook and magazine articles. 5. Discuss in class the reason for fluid intake 3000 to 4000 cc daily and the use of cranberry juice.

277

Objective 8-continued

6. From pharmacology text, develop medicine cards of urinary antiseptics, antibiotics, and sulfonomides used in treatment.

7. Discuss in class the outpatient care of a person with cystitis. Include all aspects.

8. Describe the complications of cystitis.

9. Allow student to observe a cystoscopy and report observations to class.

Objective 9: The student will be able to explain the function of the male and female reproductive organs and the hormonal influence on the production of secondary sex characteristics.

Developing Core	Student Learning Activities
During the pubescent stage of development, the endocrine system stimulates the reproductive system to produce the secondary sex characteristics in the male and female.	1. Review the anatomy of the male and female reproductive tract, (transpariencies) and the endocrine function as it influences growth, development, and reproduction. 2. Allow time to review hygiene and developmental tasks.

Objective 10: The student will be able to describe the production and role of sperm and seminal fluid in reproduction.

The reproductive organs of the male and the urinary system are joined by the passageway for urine, the urethera; which joins the ejaculatory ducts through the penis and serves as an outlet for urine and semen.	1. Describe the glandular production of sperm; the function of seminal fluid; and trace the mature sperm through the reproductive tract. 2. Discuss the function of the prostate gland. 3. Discuss the function of the penis.

Objective 11: The student will be able to describe the function of the ovaries; fallopian tubes, uterus, and breasts in reproduction; menstruation; menarche; and climateric.

Developing Core

During pubescence the female secondary sex characteristics appear because of hormonal function in the endocrine system. These hormones stimulate the ovaries which in turn stimulate the uterus and the menarche is established.

Student Learning Activities

1. Discuss and describe the function of the fallopian tubes and uterus in reproduction; menstruation; menarche; and climateric.

2. Discuss the mammary glands as reproductive organs.

3. Discuss and describe hormone activity in menstruation; reproduction; and the climateric.

Objective 12: The student will be able to assist with the routine gynecological exam; including the pap and vaginal smear.

Fear and embarrassment often deter women, young and old, from seeking medical advice concerning gynecological problems.

1. Review positioning and draping for gyne examination.

2. Discuss the emotional aspects of a gynecological exam. Students relate personal feelings.

3. Describe a pap (papanicolaou) smear procedure.

4. Discuss the reasons for encouraging a pelvic exam on all women 18 years and over on a yearly basis.

5. Define the terms: culdoscopy, dilitation of the cervix and curettage of the uterus and biopsy.

6. Show the Film-"Breast self Examination" and interpret the teaching points.

7. Allow students to demonstrate the ability to assist the patient, allay her fears, and to assist the physician with a vaginal exam, pap smear, and breast exam.

979

Objective 13: The student will be able to demonstrate the ability to assist the female patient with a douche and perineal care.

Developing Core	Student Learning Activities
Douches and perineal care are ordered for cleansing and healing purposes.	1. Review the structure and function of the vaginal tract. 2. Discuss and describe the solutions used in a douche and temperature of solution. 3. Discuss types and reasons for doctor's order both pre and post-operative. 4. Demonstrate procedures to class. 5. Have students return demonstration in laboratory setting and chart the observations. 6. Discuss safety factors in the event of patient infections. 7. Allow student to demonstrate the ability to carry out the procedure using safe and accurate techniques and perform the necessary charting. 8. Direct student to demonstrate perineal care to a patient and discuss method of clean catch-review from previous learning. 9. Direct student to demonstrate insertion of vaginal suppository, if experience is available.

Objective 14: The student will be able to explain the common medical and nursing care in disorders of the female reproductive system and demonstrate the ability to assist or give nursing care to meet the patient's physical and emotional needs.

280

Objective 14-continued

Developing Core	Student Learning Activities
Malignant tumors of the reproductive organs of the female rank third in cause of death according to the 1970 census.	1. Show trainex: "Cancer of the Uterus". Summarize important aspects. 2. Using trainex, literature from American Cancer Society, and textbook form a discussion group of the following: cancer of the cervix, fundus, and ovary. 3. Discuss the treatment; include x-ray, chemotherapy and surgery. 4. Describe the precautions used in the hospital for radiation implant. Use procedure book. 5. Discuss fibroid tumor and treatment. 6. Describe vaginal hysterectomy and abdominal hysterectomy; include reasons for douche and/or catheterization prior to surgery. 7. Discuss patients' feelings and family views of surgery. 8. Allow students to observe a patient with either type of surgery and write a nursing care plan for the patient; include diet, drugs, and nursing intervention. 9. Evaluate the ability of the student to assist or give safe, effective nursing care to the patient pre and post-operatively. 10. Define the terminology:oophorectomy;radical hysterectomy; fibroid tumor; and endometriosis. 11. Contrast the incidences and symptoms of a fibroid tumor to cancer of the uterus.

Remedial

1. Schedule individual student-teacher conferences.
2. Outline textbook chapters related to theory.
3. Repeat demonstrations of nursing procedures.
   Reinforce principles organ and ask questions.

Enrichment

Visit Women's Health Services. Discuss literature with class.

Show and discuss films:
1. Abdomino-Vaginal Approach to Stress Incontinence
2. Laparoscopy: The View Within.

Evaluation:

1. The student will identify and describe the normal structure and function of the urinary system.

2. In a written examination, the student will select correct answers to questions analyzing the need for medications, diet, specific nursing techniques, appropriate safety precausions in the care of patients with common urologic disturbances.

3. The student will discuss in detail the relationship of curculatory and kidney diseases.

4. The student will demonstrate the ability to catherize a patient of the same sex as the nurse and properly care for the indwelling catheter.

5. The student will collect and label specimens and perform common procedures used in diagnosing renal disorders.

6. The student will demonstrate the ability to maintain good hygiene thereby assisting the patient in preventing additional infection.

7. Using sterile technique, the student will demonstrate the ability to change a dressing.

8. The student will reflect competency in recording fluid intake and output and charting pertinent information.

9. The student will explain the function of the male and female reproductive organs and the hormonal influence on the production of secondary sex characteristics.

Evaluation-cont.

10. The student will show proficiency in assisting the patient and physician in a routine gynecological examination, including a pap test and vaginal smear.

11. The student will demonstrate effective, safe, technique in administering a douche, perineal care, vaginal suppository or cremes.

12. The student will demonstrate the ability to meet the needs of the patient, physically and emotionally, in giving nursing care to patients with surgery of the female reproductive system.

Recommended time
Practice: 16
Theory: 12
Total: 28 hrs.

NURSING THE PATIENT WITH METABOLIC IMBALANCES I

Introduction: The effects of the endocrine glands upon the body are as yet under investigation. Much public effort has been placed upon backing research in the area of diabetes mellitus in the United State, due to the increased number of this disease. This unit is designed to assist the student in meeting the needs of these patients.

Specific Objectives:

The student will be able to:

1. Define; locate; and explain the function of the endocrine glands.
2. Discuss dysfunction of the pitiutary gland; parathyroids; and adrenal glands.
3. Explain in detail, diabetes mellitus, including the following: predisposing factors, types, symptoms, diet, drugs, exercise, and prognosis.
4. Demonstrate the ability to give safe, effective, nursing care to patients with diabetes mellitus.
5. Determine the effects of medication and diet in the treatment of diabetes mellitus.
6. Discuss the approaches in meeting the patient's needs at home, at work, and in his/her community.
7. Explain the special problems of the diabetic patient.

References

Written

Baker, Charles E., Physician's Desk Reference, ed. 29, Medical Economics Company, Oradell, New Jersey, 1975.

Brady's Programmed Orientation to Medical Terminology, Bowie, Maryland: Robert J. Brady Company, 1970.

Chaffee, Ellen E. and Ester M. Greisheimer, Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Audio-Visual

Anatomical Charts and Diagrams
Diabetes Mellitus Flip Chart

Source: Lilly Education and Resources
Department MC-340
Eli Lilly Company
P.O. Box 100 B
Indianapolis, Indiana

Brochure: Insulin: Its Source and Action

References-cont.

Written

Brunner, Lillian Sholtis and Doris Smith Suddarth Textbook of Medical-Surgical Nursing ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Falconer, Mary W. etal. The Drug The Nurse The Patient, ed. 4, Philadelphia: W.B. Saunders Company, 1974.

Hospital Research and Educational Trust Anatomy and Physiology, The Respiratory System, ed. 2, Bowie, Maryland: Robert J. Brady Company, 1972.

Memmler, Ruth Lundeen and Ruth Byers Roda, The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton, etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ellen M. and Caroline Bunder Rosdahl, Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Townsend, Carolyn E. Nutrition and Diet Modification for the Nurse, Albany, New York: Delmar Publishers, 1972.

Williams, Sue Rodwell, Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby's Company, 1975.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, III, Philadelphia: W.B. Saunders Company, 1972.

Audio-Visual

Film: The Secretion of Insulin

Trainex:
- Care of the Patient with Diabetes Mellitus
- Diabetic Meal Planning
- Diabetes Mellitus Pathophysiology
- Teaching the Patient with Diabetes
- What is Diabetes
- Metabolic Acidosis and Alkalosis

285

Objective 1: The student will be able to define; locate; and explain the function of the endocrine glands.

Developing Core	Student Learning Activities
The endocrine glands or ductless glands are located in various parts of the body. The secretions of these glands are called hormones.	1. Locate and describe the function of the endocrine glands. Use flip chart and textbook. 2. Explain the action of the glands upon one another. Develop a chart (or class poster) to show the relationship and list each gland secretion. 3. Differentiate the terms endocrine and exocrine.

Objective 2: The student will be able to discuss briefly the dysfunction of the pituitary gland; parathyroid; and adrenal glands.

The hormones are released into the bloodstream. Oversecretion or under-secretion causes a dysfunction of that particular endocrine gland.	1. Tell or give examples of dysfunction of the pituitary, parathyroid and adrenals. Have students complete charts. 2. Site from life situations, textbooks; magazines, examples of dysfunction. Allow students to examine pictures of these. 3. Discuss the specific drugs used as replacement. Make medicine cards for each drug. 4. Direct students to practice reciting indications and management of over or under secretion of each gland.

Objective 3: The student will be able to explain in detail diabetes mellitus including the following: predisposing factors, symptoms, diet, drugs, exercise, and prognosis.

The child diabetic has been given an opportunity to live longer with discovery of insulin. Persons with mature onset diabetes are	1. Explain the relevance between age and the diabetic and the Mendalean Theory. 2. Discuss in class, persons outside the hospital who have diabetes and tell the predisposing factors of their illness.

Objective 3-continued

in many instances able to be controlled by diet or a combination of diet, insulin and/or oral hypoglycemic agents.

3. Express or relate the emotional impact of the disease upon the person and his family.

   Show and summarize trainex: What is Diabetes? Diabetes Mellitus Pathophysiology.

5. Tell how the physician is attempting to control the disease. Describe the patient's means of controlling his disease.

6. Discuss the family's methods of giving emotional support to the patient.

7. List the person's signs and symptoms and compare these to the textbook. Contrast these to diabetic people known to members of the class.

8. Differentiate each individuals' diet and drugs used to control his/her disease.

9. Evaluate these drugs and diet as a means of controlling the symptoms and effect upon urine reduction and blood sugar.

10. Compare the work or exercise different persons with diabetes do daily.

Objective 4: The student will be able to demonstrate the ability to give safe, effective, nursing care to patients with diabetes mellitus.

Developing Core	Student Learning Activities
The practical nurse should understand the signs and symptoms of diabetes as these relate to diet, drugs, and activity.	1. Show trainex-"Care of the Patient with Diabetes".
	2. Discuss the results of physical inactivity due to hospitalization on a diabetic patient.
	3. Determine what an infection might do to make this patients

287

Objective 4-continued

condition worse.

4. Decide the relationship of the emotional impact of hospitalization upon the patient's illness.

5. Evaluate and determine how well the patient knows and understands his illness. Appraise students' knowledge.

6. Describe the symptoms of insulin shock and diabetic coma. Contrast the textbook symptoms to the possible or proable ones of the patient. Take time to reinforce this aspect.

7. List the methods used to control shock and coma.

8. Tell what the patient does if either occurs at home. Use role play for patient teaching.

9. Allow students to assist in the collection of urine for G.T.T., I.T.T. (insulin tolerance test), and 24 hour urine.

10. Appraise the means by which the student is promoting exercise and skin care to his/her assigned patients.

11. Describe the changes in the nervous system, circulation, and localized insulin reaction that have occurred to patients with this condition.

Objective 5: The student will be able to determine the effects of medication and diet in the treatment of diabetes mellitus.

Developing Core	Student Learning Activities
Diabetic patients are treated and controlled by diet and/or by insulin and oral hypoglycemic agents.	1. Show trainex: "Diabetic Meal Planning".

Objective 5-continued

2. Have student simulate that he/she has just discovered he/she has diabetes and has to choose a diet that fits the doctor's prescription. Discuss feelings and problems encountered with planning this diet.

3. Design a one-day meal plan for an adolescent using 4,500 calories. Contrast this to a diet for an elderly patient on the nursing unit.

4. Describe the possible urine reduction and blood sugar outcome for the adolescent on the above diet and compare these to the elderly patient.

5. Evaluate the probable times both these patients might need a dietary supplement.

6. Compare the types of drugs which would be effective in the control of the adolescent and elderly patient. Use the patient's kardex for a list of drugs.

7. Supervise students to administer drugs to the diabetic patient.

8. Explain and demonstrate the method of mixing two types of insulin in one syringe. Allow students to practice this technique.

9. Direct students to collect information on the types of insulin and discuss in class. Prepare a chart.

Objective 6: The student will be able to discuss the approaches in meeting the patients' needs at home, at work, and in his/her community.

989

Objective 6-continued

Developing Core	Student Learning Activities
People who have diabetes must learn to live with the disease and to accommodate diet, exercise, and medications to meet their individual needs.	1. Show trainex: "Teaching the Patient with Diabetes". 2. Discuss the hygenic measures which are needed by all diabetics on a daily basis. 3. Debate the following: How can diabetes be used as an excuse, a threat, or as an asset? 4. Assist the student to discuss with the patient his diet, medicines, and activities. Does he understand these in relation to his needs? 5. Discuss the patient's work plans. What hours does he work? Will this interfere with his diet regime and medication? 6. List and discuss the community resources which are available to him/her.

Objective 7: The student will be able to explain the special problems of the diabetic patient.

Diabetic patients have complications of early arteriosclerotic changes and neuropathy. Yet, with proper care and control they can live normal, useful lives.	1. Define and discuss neuropathy. Explain its relationship to long-standing diabetes. 2. Describe the early arteriosclerotic changes in diabetes. 3. Read from a nursing journal and present to the class an article on neuropathy or arteriosclerotic changes occurring in diabetes. 4. Select a student to attend a diabetic teaching class and discuss his/her experience with the class.

Objective 7-continued

5. Allow students to help a new diabetic plan a meal with the exchange list and to choose foods from a menu.

6. Encourage students to assist the registered nurse in teaching self administration of insulin and urine reductions to a new diabetic.

7. Show and summarize the trainex: Metabolic Acidosis and Alkalosis.

Remedial

1. Teacher/student conference to discuss evaluation results.
2. Review textbook assignments, retest and discuss results.
3. Provide the student with a list of questions that he/she will write out and discuss the students comprehension at a teacher/student conferences.

Enrichment

From nursing magazines, report to class a nursing situation and care of a Cretin or Myxedema patient.

Go to pharmacy and ask for literature on care of the diabetic, insulin, and oral hypoglycemic agents and present this information to the class.

Have students research the history of insulin and its discoverers.

Evaluation:

1. Given a pretest on basic facts of the endocrine system, the student will be able to demonstrate adequate comprehension.

2. The student will be able to complete a chart on the endocrine glands, hormones, and evidences of over and under secretion of each.

3. The student will be able to correlate the signs and symptoms, diagnostic tests, diet and drug therapy, and complications with appropriate nursing management in a successful written examination.

Evaluation-cont.

4. The student will be able to recognize easily the signs and symptoms of diabetic coma and insulin shock, thereby assessing the patient's immediate need for nursing and medical intervention.

5. The student will be able to assist satisfactorily the diabetic patient in obtaining accurate urine reductions, taking prescribed chemotherapy and individual diet selection.

6. The student will be able to readily recognize community resources that are available to the patient and his/her family confronted with endocrine disturbances.

7. On the clinical unit, the student will be able to demonstrate giving competent, comprehensive nursing care to the patient with a common long-term endocrine impairment.

Recommended time
Practice: 5
Theory: 5
Total: 10 hrs.

NURSING THE PATIENT WITH ALLERGIC REACTIONS I

Introduction: In some people an allergy manifests itself from birth, in others, the allergy develops suddenly and remains fairly constant for the rest of one's life. One of the striking features of allergy is that even a minute amount of the substance to which the person is allergic can cause a reaction. The allergic reaction in human beings evidently is due to some such antigen-antibody reaction. Most substances that cause allergic reaction are proteins.

Specific Objectives:

The student will be able to:

1. Define allergy, related medical terminology, and utilize these terms correctly in recording and reporting.
2. List and describe diagnostic tests; symptoms; treatment; and demonstrate effectiveness in assisting the patient with an allergy by meeting his individual needs.
3. Discuss anaphylactic shock, describe symptoms and list emergency measures.

293

References

Written

Baker, Charles E. Physicians Desk Reference ed. 29, Oradell, New Jersey Medical Economics Company, 1975.

Brady's Programmed Orientation to Medical Terminology, Bowie, Maryland: Robert J. Brady Company, 1970.

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, Third Edition Philadelphia: J.B. Lippincott Company, 1975.

Chaffee, Ellen E. and Ester M. Greisheimer.

Audio-Visual

Trainex:
Antihistamine Drugs
Anaphylactic Shock

References-cont.

Written

Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Falconer, Mary W. etal. The Drug, The Nurse, The Patient, ed. 4, Philadelphia: W.B. Saunders Company.

Grant, Harvey and Robert Murray, Emergency Care, Bowie, Maryland: Robert J. Brady Company, 1975. (With Workbook)

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Townsend, Carolyn E. Nutrition and Diet Modifications For the Nurse, Albany, New York: Delmar Publishers, 1972.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol I, II, and III, Philadelphia: W.B. Saunders Company, 1972

294

Objective 1: The student will be able to define allergy; list symptoms and treatment and plan appropriate nursing care.

Developing Core

The human body has a defense mechanism against pathogenic organisms and foreign proteins known as antigenic substances.

About twenty percent of our population become hypersensitive to these antigenic substances and will develop an allergy.

Student Learning Activities

1. Compare immunization and allergic reaction.

2. Compile and give to students a vocabulary relating to allergies.

3. Review anatomy and physiology of the circulatory, digestive, and respiratory system in relationship to allergic reactions.

4. Assign students into groups of two to develop a history between patient and nurse. Give an Allergy Survey Sheet. (Detailed history) listing of complaints, family allergies, physical agents and habits.

5. Define and discuss methods by which allergies are diagnosed with emphasis on the nurses role.
   a. Scratch test
   b. Patch test
   c. Intradermal skin test
   d. Conjunctival test (use textbook pictures)
   e. Food allergy-diary of food one week elimination diet.

6. Discuss various treatments:
   a. Avoid allergen (ex: food)
   b. Environmental
   c. Seasonal
   d. Densensitization
   e. Drug therapy

7. Have students compile drug list and return to class for discussion. Include the antistamines, local vasoconstrictors, decongestants, corticosteroids, antibiotics, sedatives, and tranquilizers.

295

Objective 1-continued

Developing Core	Student Learning Activities
	8. Develop with students a nursing care plan-allergic condition: a. Immediate care Home and Hospital b. General care
	9. Plan for each student to have an experience in the clinical laboratory caring for a patient with an allergy.
	10. Have students develop with team members in conference a nursing care plan for each patient in clinical laboratory.
	11. Have students set up a bedroom in the home situation environmentally controlled but pleasing to the eye.
	12. Plan diets for one week-avoiding milk, wheat products, eggs.
	13. Group positive statements of Do's for people suffering from hay-fever.
	14. Have students visit and assist in allergy clinics and/or medical office.
	15. All students will write a paper and return for round table discussion either/or 1. "Desenstize the Patient-Time and Cost" 2. "Psychological Problems of Children with Allergies"
	Objective 2: The student will be able to recognize symptoms and initial emergency efforts in anaphylactic shock.
Anaphylactic shock is a condition that should be considered a true emergency. It is a reaction that occurs when a person	1. From previous discussions have students define anaphylactic shock.

296

Objective 2-continued

Developing Core	Student Learning Activities
contacts something to which he is extremely allergic. Initial emergency care efforts should be directed towards life support.	2. List causes and site examples: a. Insect stings-bees b. Ingested substances-shellfish c. Inhaled substances-pollen d. Injected substances-penicillin 3. Develop with students signs and symptoms of shock-discuss time element in relationship to reaction. 4. Discuss treatment: emphasizing life-support measures and transport to the hospital. 5. Show and summarize trainex: "Anaphylactic Shock" 6. Complement trainex by presenting additional measure of management and care. 7. Develop a Nursing Care Plan-Anaphylactic Shock, Situation: Reception room M.D.'s office, Mattie, age 8 years, had an injection of pencillin, within three minutes time the following occurred: itching of skin, hives, and edema of face and tongue. Plan action-have students select a leader and role play.
	Objective 3: The student will be able to differentiate the various types of allergies and identify appropriate nursing measures in caring for the individual patient.
Knowledge of allergies and acquired skills are helpful in developing specific nursing care pertaining to the patient's individual needs.	1. Identify three specific allergies. Include pollens, foods, and drugs. 2. Without benefit of references, direct students to describe

Objective 3-continued

Student Learning Activities

the reaction and anatomy in relation to the system, state symptoms, treatment, nursing care plan, immediate and long-term-home situations. Select three student leaders to chair the above.

3. In a round table discussion develop three nursing care plans.

4. Provide for each student to have an experience caring for patient's with an allergy-clinical laboratory.

5. Encourage student responsible for nursing care plan to discuss with team members in conference.

Remedial

Review anatomy of the respiratory system. List common symptoms of upper respiratory tract and compare to symptoms of seasonal allergies.
Review anatomy of the digestive tract and develop a comparative study including symptoms of G.I. upset and food allergies.

Review
Assist individual as indicated.

Enrichment

Have students research, develop and return for discussion "Community Resources" include: Booklets, Films, and Slides.

Have student plan with family member discussion: How to avoid allergens and environmental treatment, and home care.

Evaluation:

1. The student will fully explain an allergic reaction.

2. The student will define terms related to allergies, and utilize these terms correctly in recording and reporting.

3. The student will explain structure and physiology of digestion, repiratory, circulatory systems in relationship to allergic reactions.

4. The student will describe methods by which allergies are diagnosed and assist with these procedures.

5. The student will list five important factors in preventing an allergic reaction.

6. Given a list of allergic foods, the student will plan a diet that will adequately meet the nutritional needs of the individual.

7. The student will discuss anaphylactic shock; describe the symptoms and list five emergency measures which must be taken immediately.

8. Given a list of three specific allergies, the student will describe symptoms and treatment and demonstrate effectiveness in appropriate nursing measures.

MODULE B
MATERNAL CHILD HEALTH NURSING

350

Total 105 hrs.
Theory: 42 hours
Practice: 3 hours

MATERNITY-CHILD HEALTH NURSING

Introduction: Family centered maternity and child nursing should develop within the student a philosophy of patient care. The focus of both maternity and child nursing is the family. Opportunities for observation and application of the principles of growth and development are offered in both areas of nursing. Growth and development of the child take place first within the mother; then within the family.

Specific Objectives:

The student will be able to:

1. Define obstetric and pediatric nursing; discuss the interrelationships of these areas of nursing.
2. Describe development of the concept of maternal-child-health.
3. List the leading causes of maternal, infant, child morbidity and mortality; discuss prevention emphasizing role of practical nurse and available community resources.
4. Explain philosophy of maternal-child health nursing.

References

Written

Broadribb, Violet and Charlotte Corliss Maternal-Child Nursing, Philadelphia: J. B. Lippincott Company, 1973.

Broadribb, Violet. Foundations of Pediatric Nursing, Second Edition Philadelphia: J. B. Lippincott Company, 1973.

Fitzpatrick, E. Maternity Nursing, Twelfth Edition Philadelphia: J. B. Lippincott Company, 1971.

Audio-Visual

Clinical Maternity Facility
Clinical Pediatric Facility
Mimeographed material
United States Public Health Service statistical charts

3.01

References-cont.

Written

Wiedenbach, Ernestine, Family Centered Maternity Nursing, Second Edition, New York: G.P. Putnam's Sons, 1967.

Developing Core

Obstetrical nurses and pediatric nurses have much in common.

After World War II many changes took place in maternity and child health nursing.

Objective 1: The student will be able to define obstetric and pediatric nursing; discuss interrelationships of these areas of nursing.

Student Learning Activities

1. Define: obstetric and pediatric nursing; maternity and child health nursing. Compare and analyze definitions.

2. List desired qualities of nurses specializing in maternity-child-nursing.

3. Identify nursing skills specific to nursing of children; of maternity patients.

4. Formulate from the group a definition of maternal child nursing.

Objective 2: The student will be able to describe development of the concept of maternal child health.

1. Visit the maternity and childrens department of the hospital. Discuss observations.

2. Compare the experience of a friend with that of your mother or grandmother in obstetrics and pediatrics in relation to:
   a. physical description of unit
   b. duration of hospitalization
   c. visiting hours and restrictions

3. Identify from assigned reading, factors following World War II which contributed to changes in maternal child health care.

Objective 2-continued

Discuss changes and summarize.

4. List significant changes; describe how nursing has responded.

Objective 3 The student will be able to list leading causes of maternal, infant child morbidity and mortality; discuss methods of prevention emphasizing role of the practical nurse and available community resources.

Developing Core

Maternal child health nursing is concerned with prevention of disease and the promotion of optimum family health.

Student Learning Activities

1. List functions of the United States Public Health Service.

2. Define following terms: mortality, morbidity, birth rate, neonatal, stillbirth, perinatal, infant, maternal mortality.

3. Graphically illustrate leading causes of maternal, infant, and child, mortality.

4. Identify modern trends in maternal-child health nursing which have contributed to reduction of this figure.

5. List community resources concerned with promotion of health of mothers and children.

6. Write a paragraph describing how you personally can contribute to continued decrease of maternal and infant deaths.

Objective 4 The student will be able to explain the philosophy of maternal-child health nursing.

Mother and baby or child cannot be separated from each other nor can they be separated from the family.

1. Review definition of family; discuss the changing nature of 20th century american family.

Objective 4-continued

The child's growth and development occurs within the family.

2. Role-play the changing roles of family members. Identify effect on maternity-child nursing.

3. Report on the new research available on the father's role.

4. Research the development of maternal-child health concept beginning with the establishmnet of Children's Bureau in 1912.

5. Explain and discuss: "The application of principles of growth and development unifies maternity and child nursing".

Enrichment

Interview a pediatric nurse practioner and nurse midwife--note: educational background; duties; legal aspects; report to group.

Graphically compare maternal and infant mortality of the United States with other countries.

Discuss possible explanation for these statistics--prepare a panel discussion.

Evaluation:

1. The student will be able to define maternity and child health nursing.

2. The student will be able to list three nursing skills specific to the nursing of children and maternity.

3. The student will be able to list and explain three factors following World War II which affected maternity and child health nursing.

4. Ths student will be able to explain changes in nursing in response to changing family needs.

5. The student will be able to list three causes of maternal, infant, child mortality; explain responsibility of nurse to help reduce these figures.

6. The student will be able to identify the significant changes which have occurred in twentieth century american family; discuss the impact on maternity and child health nursing.

PREPARATION FOR PARENTHOOD

Introduction: This unit is designed to help the student understand the physical and psychological impact of pregnancy not only on the expectant mother but on the entire family including grandparents.

Specific Objectives:

The student will be able to:

1. Describe organs of reproduction: list their functions; explain interrelated process of ovulation and menstruation; hormonal influences; fertilization.
2. Recognize the importance of female pelvis as the passageway from fetus during labor.
3. Relate the physical and psychological changes of the expectant mother in each trimester of pregnancy including: fetal development; health and hygiene; nutrition, common discomforts and nursing measures and prenatal care.
4. Describe essential components of good prenatal care; list community resources available for the expectant family.
5. Compare fetal circulation with infant circulation.

References

Written

Anderson, Barbara G. Obstetrics for the Nurse, Albany, New York: Delmar Publishers Inc., 1966.

Bethea, Doris C. Introductory Maternity Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Anatomical Chart: Reproductive System
Phamphlet: The Doctor Talks About Menstration... Tampax Company
Model of Female Pelvis and Doll
Ross Laboratory: Charts:
Fetal Circulation
Female Breast

305

References-cont.

Written

Broadribb, Violet and Charlotte Corliss Maternal-Child Nursing, Philadelphia: J.B. Lippincott Company, 1973.

Chaffee, Ellen E. and Ester M. Greisheimer. Basic Physiology and Anatomy, ed. 3 Philadelphia: J.B. Lippincott Company, 1974.

Fitzpatrick, E. etal. Maternity Nursing, ed. 12. Philadelphia: J.B. Lippincott Company, 1971.

Ingalls, A. Joy and M. Constance Salerno. Maternal and Child Health Nursing, ed. 3, Saint Louis: C.V. Mosby Company, 1975. (Study guide)

Williams, Sue Rodwell. Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby Company, 1975.

Audio-Visual

Obstetric Transparencies

Film: From Generation to Generation

Family Centered-Maternity Nursing Preparation for Parenthood

Films

1. The Menstrual Cycle: Lilly Education Resources Program Dept MC-340

2. After You go Home

3. The Rh-Negative Mother Eli Lilly & Company P.O. Box 100 B Indianapolis, IN 46207

306

Objective 1: The student will be able to describe organs of reproduction; list their functions; explain interrelated processes of menstruation and ovulation; fertilization.

Developing Core

Understanding and appreciation of the maternity cycle are acquired through knowledge of the anatomy and physiology of the reproductive systems.

Student Learning Activities

1. List and locate on an anatomical chart male and female organs of reproduction.

2. Discuss structure; explain functions of these organs.

3. Define ovulation and menstruation; explain interrelationships of these processes. Give phamphlet:

Objective 1-continued

"The Doctor Talks about Menstruation".

4. Draw a chart to illustrate hormonal influence on the menstrual cycle.

5. Review anatomy and physiology of the female breast; discuss statement: "A large breast indicates mother will have a large milk supply".

6. Draw a male and female gamete. Explain fertilization and heredity. List common hereditary traits and resultant dysfunctions.

7. Differentiate between hereditary disease and cogenital defects.

Objective 2: The student will be able to recognize the importance of the female pelvis as the passageway for the fetus during labor.

Developing Core

One of the goals of labor is the safe passage of the passenger (the fetus) through the passageway (the pelvis).

Student Learning Activities

1. Using a model or chart, compare the male and female pelvis.

2. Identify on a pelvic model: false and true pelvis; pelvic inlet, cavity, and outlet.

3. Explain and demonstrate with a pelvic model and doll the importance of the pelvis during labor.

Objective 3: The student will be able to relate the physical and psychological changes of the expectant mother in each trimester of pregnancy including: fetal development, health and hygiene, nutrition, and common discomforts and nursing measures.

Developing Core

After fertilization the one-celled ovum develops into a multi-trillion celled baby ready to be born. This complex change normally follows a progressive course, during which the expectant mother undergoes profound changes which affect her whole being.

Student Learning Activities

1. Develop a chart indicating significant embryonic and fetal growth and development during each trimester of pregnancy.

2. Indicate on a chart the relationship of fetal growth and development with physical changes of the mother.

3. Use a descriptive phrase to summarize expectant mother's psychological reaction to each trimester.

4. Prepare a diet for a family; adjust this to meet changing needs of expectant mother and baby. Discuss the nutritional needs of the expectant mother.

5. Modify this diet plan for the obese, or teenage, expectant mother.

6. Prepare a plan for an individual mother in a prenatal clinic for each trimester of pregnancy in relation to: discomforts such as morning sickness and nursing measures; hygiene and health care; plans for feeding a baby; and breast care.

7. Role play family members reaction to mother's pregnancy; include the father, two children, ages 4 and 16.

8. Arrange observation of parent classes and prenatal care in clinic or obstetrician's office.

Objective 3-continued

9. Talk with friend or relative who is a new mother. Have her share some of her prenatal experiences with you. Compare experiences in class.

Objective 4: The student will be able to describe essential components of good prenatal care, list community resources available for expectant family.

Developing Core

Family-centered maternity care is concerned not only with the maximum safety of mother and baby but with the promotion of health and prevention of complications.

Student Learning Activities

1. Define prenatal care; describe the essential components of good care.

2. Discuss the following:
   a. How early should women seek care?
   b. If woman is new in community how would she proceed to get care?
   c. How could she evaluate care?
   d. Describe how you would motivate mother to seek medical care.

3. List community resources available for the expectant family.

4. Investigate premarital and prenatal tests required by law in Pennsylvania. Follow with a class discussion.

5. List all danger signals of pregnancy and role play the method of giving expectant mother information without alarming her.

Objective 5: The student will be able to compare fetal circulation with infant circulation.

Immediately after birth the new baby can no longer rely on the placenta for its oxygen needs.

1. Using the fetal circulation chart from Ross, trace oxygen from the placenta to the fetus; carbon dioxide from the fetus to the placenta.

309

Objective 5-continued

2. List special fetal structures and explain their function.

3. Compare fetal circulation with that of an infant or adult.

4. Obtain a placenta: identify fetal vessels membranes; fetal and maternal surfaces; Discuss and compare.

Enrichment

Determine through literature or observation what anatomy and physiology is included in parent classes. Discuss depth of content.

Make a chart of your basal metabolic temperature. Discuss purpose and key points to note.

Observe x-ray pelvimetry and report to the group: Discuss purposes and preparation of patient.

Show x-ray examples; identify fetal head and pelvic inlet. Discuss sonar scan as a method for determining baby's size.

Using a textbook as reference, design models to demonstrate four types of female pelves.

Investigate the cost of pregnancy including: medical care, mother's clothing, layette, furniture, and cost of bottle feeding.

Assign a student to a new patient to antepartal clinic. Admit patient and remain with her/him during visit. Write a report of observation; discuss in class.

Instruct expectant mothers in relation to: hygiene and health, weight, diet, discomforts, and nursing measures.

Evaluation:

1. The student will be able to describe and list the functions of male and female organs of reproduction.
2. The student will be able to define menstruation and ovulation; explain the hormonal control of these processes.
3. The student will be able to explain "cephalopelvic disproportion".
4. If given a list of significant growth and developmental changes of the fetus, the student will be able to identify the fetal age.
5. Without the use of a chart, the student will be able to trace fetal circulation.
6. The student will be able to explain causes of common discomforts of pregnancy; list common nursing measures.
7. From a sample menu, the student will be able to modify it in relation to maternal needs.
8. The student will be able to identify the physical and psychological changes of the mother in relation to trimesters of pregnancy.
9. The student will be able to explain the importance of early and continous medical supervision of the expectant mother.
10. The student will be able to identify the essential components of good prenatal care.
11. The student will be able to list all of the danger signals of pregnancy.
12. The student will be able to name three community resources available for the expectant family.

3.11

THE LABOR EXPERIENCE FOR THE EXPECTANT FAMILY

Introduction: In this unit emphasis is placed on the normal physiological process of labor. The physical and psychological changes which occur in the mother as she progresses through each stage of labor is explained and effective nursing measures which the student may give to contribute to the comfort of the mother and safe arrival of the baby.

Specific Objectives:

The student will be able to:

1. Define labor as well as explain the stages and mechanisms of labor.
2. List kinds of obstetrical anesthesia and analgesia, including natural childbirth; compare advantages and disadvantages.
3. Identify and compare physical and psychological changes as the mother progresses in labor; recognize needs of the mother supportive person.
4. Recognize and give effective nursing care to the mother during labor.

312

References

Written

Anderson, Barbara G. Obstetrics for the Nurse, Albany, New York: Delmar Publishers Inc., 1966.

Bleier, Inge J. Maternity Nursing, ed. 3, Philadelphia: W.B. Saunders Company, 1971.

Broadribb, Violet and Charlotte Corliss. Maternal-Child Nursing, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Model of female pelvis and doll.
Ross Laboratory: Educational Series
Fetal Positions
Mechanisms of Labor
Transparencies: Obstetrics
Transparencies: Definition:
position presentation
attitude
Film: Normal Delivery

References-cont.

Written:

Fitzpatrick, E. et al. Maternity Nursing, ed 12, Philadelphia: J.B. Lippincott, 1971.

Wiedenbach, Ernestine. Family-Centered Maternity Nursing, ed. 2, New York: G.P. Putnam's Sons, 1967.

Objective 1: The student will be able to define labor as well as explain the stages and mechanisms of labor.

Developing Core

The third trimester of pregnancy can be described as the: "Time of Watchful Waiting." The expectant parents are occupied with the onset of labor.

Student Learning Activities

1. View film: "From Generation to Generation"; review the antepartal period; preview labor, signs and symptoms; mechanisms

2. Observe two patients in prenatal clinic near the expected date of confinement. List questions asked by patients and information given by whom.

3. Discuss response to patient's question: "When should I come to the hospital?"

Objective 2: The student will be able to list three kinds of obstetrical anesthesia, including natural childbirth; compare their advantages and disadvantages.

Although the present philosophy of childbirth stresses that it is a completely normal, natural process, there are times when anesthesia and analgesia are needed.

1. Observe class for expectant parents on: "pain relief during labor." List the following: question asked; kinds of anesthesia and analgesia described and conclusions reached.

2. Have students demonstrate "Parent Teacher", exercises for childbirth; explain purpose of each exercise.

313

Objective 2-continued

Developing Core	Student Learning Activities
	3. View film: "Normal Delivery". Discuss observations and reactions; compare with actual birth followed by a group discussion.
	Objective 3: The student will be able to compare physical and psychological changes as mother progresses in labor; and recognize needs of supportative person concerned with her welfare.
Many physical and psychological changes occur in the expectant mother as she progresses through each stage of labor.	1. Direct students to observe admission of a patient in labor, observe the following; explain the purpose of each and report to the group: reaction of mother, reaction of father or other supportive person, questions asked, and nursing measures instituted.
	2. Contrast the first stage of labor of "normal primip" with "multip" in relation to length; dilatation patterns; general tolerance, patient's reactions to the nurse and family.
	3. Contrast the second stage of labor of the same patients in relation to: signs of onset, both early and latter; patterns of contraction; physical appearance.
	4. Observe father's: physical appearance, location in the room, and questions or comments.
	5. List the methods by which fetal condition can be determined before birth. Illustrate and determine students' understanding of each method.

Objective 3-continued

Developing Core	Student Learning Activities
	6. Contrast the third state of labor continuing with the same patients identify: signs of onset; mechanism, and the importance of this stage.
	7. List methods of keeping the father informed of his wife's progress if he is not present in labor room.
	8. Compare obstetrics with the surgical recovery room; discuss observations and care based on the patient needs.
	9. Describe methods of meeting the mother's need if the recovery room not available

Objective 4: The student will be able to recognize and give effective nursing care to the mother during labor.

	Enrichment
Nursing the mother in labor is both a privilege and challenge.	Arrange for a speaker from the Lamaze method of preparation for childbirth to speak to the students.
	Compare the Lamaze method with "Childbirth without Fear" by Grantly Dick Read. Report to class.
	Assign student to a patient having a breech; presentation persistant occiput posterior. Contrast with patient with the occiput anterior in relation to: length of each stage; dilatation patterns; general tolerance; and nursing care adjusted to meet the specific needs of the patient.

315

Evaluation:

1. The student will define labor and list the causes.
2. The student will list and explain the stages of labor.
3. The student will list and explain three kinds of obstetrical anesthesia including natural childbirth.
4. The student will recognize the physical and psychological changes of the mother as she progress in labor.
5. The student will identify the principles of effective nursing care for the patient in labor; and needs of the mother's supportive person.

316

CARE OF NEW MOTHERS AND BABIES

Introduction: Postpartum nursing family-centered is challenging and creative. its primary focus is on the mother and baby but it includes the father in its sphere of responsibility. The purpose of this unit is to help the student to identify the physical and psychological needs of the mother and baby and then examine ways to meet this need.

Specific Objectives:

The student will be able to:

1. Discuss the baby's initial adjustment to birth and explain nursing measures to meet these needs.
2. Describe characteristics of the newborn and recognize individual differences.
3. Identify physical needs of the newborn; give effective nursing care.
4. Lists and explain physical and psychological changes in the new mother and give effective nursing care.
5. Demonstrate the ability to give basic instructions to the new family.

317

References

Written

Anderson, Barbara G. Obstetrics for the Nurse, Albany, New York: Delmar Publishers Inc., 1966.

Bethea, Doris C. Introductory Maternity Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Broadribb, Violet and Charlotte Corliss. Maternal-Child Nursing, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Apgar Scoring Chart
Guide for Comparison of Newborns

Ross Laboratory: Educational Series Characteristics of Newborn

Traines: Infant Care
Postpartum Care

Field Trip: Planned Parenthood

References-cont.

Written

Broadribb, Violet. Foundations of Pediatric Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Erikson, Erik H. Childhood and Society, New York: W.W. Norton and Company Inc., 1950.

Falconer, Mary W. etal The Drug The Nurse The Patient, ed. 4, Philadelphia: W.B. Saunders Company.

Fitzpatrick, E. etal. Maternity Nursing, ed. 12, Philadelphia: J.B. Lippincott Company, 1971.

Ingalls, A. Joy and Constance Salerno. Maternal and Child Health Nursing, ed. 3, Saint Louis: C.V. Mosby Company, 1975. (With study guide)

Wiedenbach, Ernestine. Family-Centered Maternity Nursing, ed. 2, New York: G.P. Putnam's Sons, 1967.

Williams, Sue Rodwell. Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby Company, 1975.

Objective 1: The student will be able to identify the baby's initial adjustment to birth; explain nursing measures to meet these needs.

Developing Core

After birth the baby must make many adjustments to extrauterine life

Student Learning Activities

1. Arrange for students to observe a baby immediately after birth. Prepare for class discussion by writing a description noting color, muscle tone, cry, apgar score.

Objective 1-continued

2. Identify immediate care given to the infant; explain the purpose of these measures.

3. Compare reports of students then identify the differences and similarities.

4. Review fetal circulation. Explain the results of "clamping the cord".

5. Discuss the Leboyer method of delivery.

Objective 2: The student will be able to describe characteristics of the newborn; recognize individual differences.

Student Learning Activities

1. Refute or prove the statement: "All newborns are the same". Compare two infants in the normal newborn nursery in relation to physical characteristics and behavior.

Objective 3: The student will be able to identify physical needs of newborn; give effective nursing care.

1. Discuss and describe how nursing care routine in newborn nursery are based on "Adjustments of Baby" to extrauterine life in relation to observations of respiration and circulation, excretion, warmth, food and cord care.

Developing Core

The baby is not a miniature adult. He/she has individual physical and psychological needs and his own patterns of growth and development.

The need for food is basic for life. The question of "How should I feed my baby?" causes concerns for the new mother. She often measures her success or failure as a mother by the baby's success of feeding.

Objective 3-continued

2. Assign student to take a breast fed baby to mother; observe the following: position of the mother; handling of the baby and method of "bubbling".

3. Debate: "Breast Feeding vs. Bottle Feeding". Investigate community resources available in assisting mothers interested in breast feeding.

4. Discuss the nutritional needs of the lactating mother.

5. Describe the possible effects on the mothers to have "wrong baby" brought to her.

Objective 4: The student will be able to identify and explain physical and psychological changes in new mother; give effective nursing care.

Developing Core

During labor the mother has directed all her physical effort in giving birth to her baby. Although she requires mental and physical rest the nurse must realize this is a critical time for her.

Just imagine an organ normally two ounces increasing in size to accommodate a seven pound baby. This is only one of the many changes which must take place within the mother's body.

For nine months the baby has been a close part of the mother. Now it is her job to make the baby a part of the family.

Student Learning Activities

1. Discuss the admission of newly delivered mother to the postpartum unit in relation to observations, nursing care and areas of teaching

2. Compare an admission of the mother and indicate how the above routines were adjusted to meet this patient's needs.

3. Assign students two postpartum patients. One, first; the other second day postpartum. Compare patients follow with class discussion include physical and psychological.

Objective 4-continued

4. Describe and give illustrations of "taking in", "holding on", and "postpartum blues".

5. Discuss the following statement: "Postpartum care is so routine. The mothers are well and most of the time I have nothing to do".

6. Identify and describe how methods of maternity nursing can be family centered on the "traditional" postpartum units.

7. Make a chart of the drugs used in postpartum. Include classification, purpose and dosage.

8. Direct a student to plan a menu for one week for the breast feeding mother.

9. Assign students to visit planned parenthood. Discuss services offered.

Remedial

Review in the nursery with individual students, the general characteristics of the newborn.

Enrichment

Have students compare extra-uterine behavior with intra-uterine. Assign selected students to observation in the premature nursery and write a comparison of the premature baby with normal newborn and report to group.

Assign students to give a mother initial instructions on breast feeding. With teacher's assistance invite speaker from Leche League to explain to group the organization's philosophy and objectives.

Enrichment-cont.

Allow student to visit a rooming-in unit and compare with traditional unit.

Evaluation:

1. The student will be able to explain the essential adjustments to birth.
2. The student will be able to explain nursing measures to meet these needs.
3. The student will be able to list the five general characteristics of newborns.
4. Ths student will be able to give effective nursing to newborns.
5. Ths student will be able to identify and explain the progressive physical and psychological changes of the mother.
6. The student will be able to demonstrate the ability to give basic instructions to new family.

THE SPECIAL NEEDS OF THE FAMILY

Introduction: The emphasis of maternity nursing is placed on the normal physiological and psychological processes of the child-bearing experience. Although complications belong to the area of obstetrics, some of these should be understood by the student to recognize her responsibilities to the expectant family.

Specific Objectives:

The student will be able to:

1. Identify the major complications of the antepartum period and explain methods of prevention.
2. Discuss pertinent needs and concerns of unwed parents, teenage parents, the unwanted baby.
3. List four complications of the laboring mother including forced delivery and caesarean section.
4. Recognize that postpartum hemorrhage and infection are the most common postpartum complications, and identify methods of prevention.
5. Identify common complications of the newborn including common congenital malformations and prematurity.

323

References

Written

Anderson, Barbara G. Obstetrics for the Nurse, Albany, New York: Delmar Publishers Inc., 1966.

Broadribb, Violet and Charlotte Corliss. Maternal-Child Nursing, Philadelphia: J.B. Lippincott Company, 1973.

Fitzpatrick, E. etal. Maternity Nursing, Twelfth Edition Philadelphia: J.B. Lippincott, 1971.

Ingalls, A. Joy and Constance Salerno. Maternal

Audio-Visual

Model of Female Pelvis; Doll and Simpson Forceps
Chart: Mortality rates--Mothers, Infants, Children

References-cont.

Written

and Child Health Nursing, Third Edition
Saint Louis: C.V. Mosby Company,
1975. (Study Guide

Developing Core

The two major complications for the expectant mother are bleeding and toxemias. These can be prevented by early and continuous prenatal care.

The expectant mother cannot be separated from the family and cannot be isolated from the community. The student practical nurse must be aware of the needs of teenage parents, unwed parents and unwanted babies.

Objective 1: The student will be able to identify major complications of the antepartum period and explain methods of prevention.

Student Learning Activities

1. Discuss the causes of bleeding in the early and later trimesters of pregnancy.
2. Describe symptoms, medical treatment, and nursing care.
3. Describe methods of prevention.
4. Prepare clinical conference of patient with bleeding and compare with texbook.
5. Prepare clinical conference of patient with toxemia of pregnancy including causes, predisposing factors, symptoms, medical treatment, drugs, diet modifications and prevention.

Objective 2: The student will be able to recognize pertinent needs and concerns of unwed parents, teenage parents, unwanted baby.

1. Prepare clinical conference and compare teenage parents with older parents.

324

Objective 2-continued

2. Invite social worker to a conference on the unwed mother. Have her discuss the following: function and preparation of medical social worker; incidence of unwed parents; reactions of parents; and community agencies available.

3. Summarize the above conference and have students discuss their observations.

4. Research community agencies available and policies of Pennsylvania in relation to adoption and discuss "Black Market Babies".

Objective 3: The student will be able to list four complications of the laboring mother including forcep delivery and section.

Developing Core

Following a C-section the mother has physical needs of any other surgical patient but also physical and psychological needs of the new mother.

Sometimes a forcep delivery is necessary for the welfare of mother and baby. Without knowledge of purpose and technique this frequently frightens a student.

Student Learning Activities

1. Discuss C-section to include cause, purposes, incidence and anesthesia.

2. Have students develop a nursing care plan for the mother who has had a section: Discuss in total group. Including the following; relationship with baby; surgical needs; compare mother and baby who had vaginal delivery.

3. Obtain forceps and with model and doll demonstrate the mechanisms of labor; discuss purposes and possible complications and observation of mother following delivery.

325

Objective 3-continued

4. Define dystocia, list a few common causes and discuss methods of prevention.

Objective 4: The student will be able to recognize that postpartum hemorrhage and infection are major complications of postpartum patients; identify methods of prevention.

1. Review causes of maternal mortality. Discuss methods of prevention during the postpartum period.

2. List and discuss causes, symptoms, treatment and nursing care.

Objective 5: The student will be able to identify common complications of the newborn including some congenital malformations and prematurity.

In order to develop a sense of responsibility in caring for the new mother the student must know some of the dangers of the new mother.

Developing Core

Newborn is the period of complete dependency. The nurse caring for the infant is often the first person to identify problems.

Student Learning Activities

1. Review "Nursery Routines" and relate how these provide an opportunity for the nurse to observe problems for newborn.

2. Make a list of problems and discuss each fully. Include causes, diagnosis, treatment, and prevention of each.

Enrichment

Direct students to investigate the intensive care nursery; discuss the modifications of nursing care, diagnosis, feeding problems and convey these observations to classmates.

Develop a comparison chart between the normal and premature infant. Examine pictures and identify specific differences.

Evaluation:

1. The student will be able to identify three major complications of the antepartal period and explain prevention measures of each.

2. The student will be able to discuss the pertient needs and concerns of each of the following: unwed parents; teenage parents; and the unwanted baby.

3. The student will be able to list four complications of the laboring mother including forced delivery and caesarean section.

4. The student will be able to recognize that postpartum hemorrhage and infection are the most common postpartum complications and identify the methods of prevention of each.

5. The student will be able to identify common complications of the newborn including two congenital malformations and all major aspects of prematurity.

Total 105 hrs.
Theory 42 hours
CL Experience 63 hours

INTRODUCTION TO GROWTH AND DEVELOPMENT

Introduction: In this unit the student is introduced to the general principles of growth and development which the student should know in order to adapt his/her nursing care to the needs of children in different age groups.

Specific Objectives:

The student will be able to:

1. Define and illustrate with examples the terms growth, development, maturation, and intelligence.
2. Identify the internal and external factors which affect growth and development.
3. List the stages of growth and development and explain the major physical and psychological characteristics of each stage.

Written

Blake, Florence G. Nursing Care of Children, 8th Edition, Philadelphia: J. B. Lippincott Company, 1970.

Broadribb, Violet. Foundations of Pediatric Nursing, 2nd Edition, Philadelphia: J. B. Lippincott Company, 1973.

Broadribb, Violet and Charlotte Corliss. Maternal-Child Nursing, Philadelphia: J. B. Lippincott Company, 1973

Erikson, Erik H. Childhood and Society, New York: W. W. Norton and Company, Inc., 1963

Audio-Visual

Children depicting each stage of development.
Growth and development charts and diagrams.
Pictures of children during various stages of growth.

328

Written

Ingalls, A. Joy and M. Constance Salerno. Maternal and Child Health Nursing, 3rd Edition, Saint Louis: C. V. Mosby Company, 1975

Audio-Visual

Objective 1: The student will be able to define and illustrate with examples growth, development, maturation, and intelligence.

Developing Core

Normal growth from birth to adulthood is characterized by certain principles. Development is a highly individualized process, and a comparison of a child with him/herself and others is helpful in evaluating progress.

Student Learning Activities

1. List the general characteristics of growth and development. Present specific examples of each characteristic.

2. Differentiate between growth and development. Reinforce this difference by eliciting from students various examples of each.

3. Explain and give examples of maturation and intelligence.

4. Using charts and diagrams, illustrate the measurement of growth, development, and intelligence quotient.

Objective 2: The student will be able to identify the internal and external factors which affect growth and development.

Developing Core

Every child's growth and development is governed by genetic and environmental forces.

Student Learning Activities

1. Define the terms internal and external. Ask students to list internal and external factors which affect growth, development, maturation, and intelligence quotient.

329

Developing Core

Student Learning Activities

2. Debate: "Heredity versus Environment".

3. Elicit from students examples of how these factors may be utilized to promote normal growth and development.

Enrichment

Assign students to further research projects concerning the effects of heredity and environment. Appraise findings.

Objective 3: The student will be able to list the stages of growth and development and explain the major physical and psychological characteristics of each stage.

Developing Core

Growth and development is divided into stages. These stages enable the student to readily identify normal patterns and deviations apparent in the child for which they are caring.

Student Learning Activities

1. Present the principles of child development. Include the physical, social, emotional, and intellectual factors.

2. Discuss the question: "Why is a sound understanding of growth and development essential to the practical nurse?"

3. Present an overview of the theories of past and present child psychologists. Mention the works of Freud, Piaget, Jung, and Erikson.

4. List the stages of growth and development. Identify the physical characteristics of each stage.

5. Show and summarize trainex: <u>Normal Patterns of Development</u>.

Developing Core	Student Learning Activities
	6. Assign students to read related material in relationship to Erik Erikson's phychosocial developmental theory. Identify the outstanding physical characteristics of each stage as given by Erikson. 7. Allow time for students to review and assimilate major aspects of physical and psychological growth and development. Enrichment Assign student groups to patients who represent the various stages of physical growth and psychological development. Form a panel discussion to summarize what the "average child" does. Contrast Carl Jung's and Erik Erikson's approach to growth and development.

Evaluation:

1. The student will be able to differentiate between growth and development.
2. The student will be able to define and illustrate with examples the terms growth, development, maturation, and intelligence.
3. The student will be able to list and explain three characteristics of growth and development.
4. The student will be able to identify three internal and external factors which affect growth and development.
5. The student will be able to explain how these internal and external factors can be utilized to promote normal growth and development.

Evaluation (cont'd.):

6. Given a list of the major physical and psychological characteristics, the student will be able to identify the developmental stage.

MATERNAL-CHILD NURSING
PEDIATRICS

Introduction: In the past century we have seen drastic changes in the attitudes of society toward children. We live in a highly complex society, demanding stronger and more resolute individuals. Nursing care of children entails an understanding of the child as a developing person with unique ways of feeling and thinking with his own individual methods of coping with his environment.

Specific Objectives:

The student will be able to:

1. Recognize and describe normal growth and development of infancy, toddlerhood, pre-school, school age, puberty, and adolescent stages of life.
2. Identify the nutritional requirements throughout various stages of development.
3. Demonstrate competency in performance of simple nursing in minor illnesses.
4. Give safe, effective nursing care to the child with short-term, moderately complex nursing needs.
5. Perform safe, effective nursing care to the child with long-term, moderately complex nursing needs.

References

Written

Albrecht, Margaret. Parents and Teenagers! Getting Through To Each Other, New York: Parent's Magazine Press, 1972.

Blake, Florence G. Nursing Care of Children ed. 8, Philadelphia: J.B. Lippincott Company, 1970.

Broadribb, Violet. Foundations of Pediatric Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Broadribb, Violet and Charlotte Corliss, Maternal-Child Nursing, Philadelphia: J.B. Lippincott Company, 1973.

Erikson, Erk H. Childhood and Society, New York: W.W. Norton and Company Inc., 1950.

Audio-Visual

Growth and Development Charts
Cancer in Children-3743 PE

Film: Source: The American Cancer Society
Allegheny County Unit
241 Fourth Avenue
Pittsburgh, PA 15222

My Friend, Edi
(Explaration of Juvenile Diabetes)

Source: Lilly Education Resources Program
Department MC-340
Eli Lilly and Company
P.O. Box 100 B
Indianapolis, Indiana 46206

References-cont.

Written

Gilber, Sara D. Three Years to Grow, New York: Parent's Magazine Press, 1972.

Gilbert, Sara D. What's A Father For, New York: Parent's Magazine Press, 1975.

Ginote, Haim. Between Parent and Child, New York: Macmillan Company, 1970.

Hasler, Doris. The Practical/Vocational Nurse and Today's Family, Second Edition New York: Macmillian Company, 1972.

Hoover, Mary B. The Responsive Parent, New York: Parent's Magazine Press, 1972.

Hymovich, Debra P. Nursing of Children, Philadelphia: W.B. Saunders Company, 1969.

Ingalls, A. Joy and M. Constance Salerno. Maternal and Child Health Nursing, Third Edition, Saint Louis: C.V. Mosby Company, 1975.

Minton, Lynn. Growing Into Adolescence, New York: Parent's Mazazine Press, 1972.

Mogal, Doris P. Character in the Making, New York: Parent's Magazine Press, 1972.

Neisser, Edith G. Primer for Parents of Preschoolers, New York: Parent's Magazine Press, 1972.

Persis, Mary Hamilton. Basic Pediatric Nursing, Second Edition, Saint Louis: C.V. Mosby Company, 1974.

Audio-Visual

Pamphlets:

Mister Rogers Talks to Kids-Blue Cross Blue Shield

The Middle Age Child -Life Magazine 10/20/72 pp. 41-45

Trainex:

Admission and Orientation of the Child

Cathy has an Operation

Parents and Their III Child

Pediatrics Series

Stephen Goes to the Hospital

334

References-cont.

Stuart, Harold and Dane G. Prugh. The Healthy Child, Cambridge, Massachusetts: Harvard University Press, 1960.

Wiedenbach, Ernestine. Family Centered Maternity Nursing, Second Edition, New York: G.P. Putman's Sons, 1967.

MATERNAL CHILD HEALTH
INFANT (ONE MONTH TO ONE YEAR)

Objective 1: The student will be able to recognize and describe normal growth and development during infancy.

Developing Core

In infancy there are wide variations in size and speed of postnatal growth. To interpret measurements, a standard for allowable deviation from the average is necessary.

Student Learning Activities

1. Have the student discuss height and weight changes during the first year. Illustrate by charts and diagrams.

2. Direct students to develop a chart in pattern changes of both physical, motor, and psychosocial characteristics of the infant.

3. Divide students into groups of two to discuss and differentiate the average infant in various levels of growth and development.

4. Have the students report in a panel discussion the changes in cephalocaudal and proximo-distal direction.

5. Have the students design a recommended schedule for medical supervision, active immunization, and tuberculin testing of normal infants.

6. Have students collect information on the purpose of Child Health Conference and its personnel.

Objective 1-continued

Developing Core

Good nutrition amounts to sufficient protein, carbohydrates, fats, vitamins, and minerals to support life and to provide the best opportunity for growth and maintenance of health. They have particular importance for the infant whose rapid growth and skimpy stores make him/her more vulnerable to nutritional disease.

Remedial

Allow stronger students to work with weaker student-question and answer session in growth and development of the infant. Schedule individual teacher-student conferences.

Enrichment

1. Supervise students assisting in Child Health Conference.
2. Allow students to visit and assist in immunization program.
3. Assign students to develop a comparative study "Sense of Trust vs. Mistrust" report round table discussion with all students with the teacher as a resource person.

Objective 2: The student will be able to identify the nutritional requirements of the infant.

Student Learning Activities

1. Discuss nutritional requirements of infancy at various levels i.e., first three months, three-six months, six-nine months, and nine to twelve months.

2. Discuss fluid intake of infant in relationship to fluid balance.

3. Interpret flouride requirements for strengthening calcification of teeth.

4. Have student collect information and return to class for discussion in the following areas: adding solid foods, preparating foods, and feeding at various levels.

5. Have a student discuss and demonstrate with a doll; bottle and solid feeding at various levels. Encourage other students to expand on self-feeding.

Remedial

Review: Offer individual help.

Developing Core

The infant is unfamiliar with the world needs and wants guidance.

The parent sees the infant as an individual with a developing personality who needs opportunity and encouragement to develop and grow according to his own pattern.

Objective 2-continued

Enrichment

Assign students to design a plan for weaning the infant, followed by question and answering session with group participation.

Role play the childless woman versus a mother's thoughts on thumb sucking and feeding.

Objective 3: The student will be able to demonstrate competency in the performance of simple nursing in minor illnesses.

Student Learning Activities

1. Have the student discuss current theories concerning the manner in which infections arise and spread. List factors done by these pathogens that determine the amount of damage.

2. List recent advances in regard to illnesses and/or accidents.

3. The teacher and students will develop a nursing care plan and treatment of the common cold in the home situation.

4. List preventive measures in avoidance of secondary illnesses.

5. Develop a chart showing common mechanisms of accidental injury emphasizing preventive measures and potential hazards.

6. Explain the role of the pediatrician, extended health services, pediatric clinics and the visiting nurse as consultants enabling the mother to be able to care for the infant herself.

Objective 3-continued

Remedial

Review: Offer Assistance to individual students.

Enrichment

Assign students to expand on complications such as otitis media and the prophylactic measures utilized available.
Assign students to collect information on Homemaker Services followed by a discussion with all students participating.

Objective 4: The student will be able to give safe, effective nursing care to infant with short-term, moderately complex nursing care.

Developing Core

Diarrhea is a common symptom of a variety of conditions. It implies an excessive number of liquid stools. The infant has a rapid loss of fluid and electrolytes leading to dehydration and acidosis.

Student Learning Activities

1. Have students review the anatomy and physiology of the digestive tract.

2. Discuss the total effects of hospitalization:
   a. separation from mother
   b. parents feelings

3. Identify the three phases of adjustment to hospitalization.
   a. protest, b. despair, c. denial.

4. Discuss the nurse's role:
   a. mother substitute
   b. support to the whole family
   c. team member

5. Summarize meeting the daily basic needs of the infant.
   a. physical (bath, feeding, environmental)
   b. psychological (supportive, safety)

Objective 4-continued

6. List and explain nursing treatments to meet special aspects of pediatric nursing. Include vital signs, weight, specimens, restraints, and tepid sponge baths.

7. Direct students to develop a nursing care plan for the infant with diarrhea and compare this infant with the texbook picture of diarrhea.

8. Allow students to care for an infant with diarrhea in the clinical laboratory. Have them assume responsibility for a nursing care plan and participate in discussion with team members.

Remedial

Individual re-teaching as indicated.

Enrichment

Select a student to develop a specific discharge plan and present this plan to the infant's mother.

A second student should be selected to research community agencies that might assist the parents and convey this information to them.

The above students will role-play this information to all students.

Objective 5: The student will be able to give safe, effective nursing care to an infant with long-term, moderately complex nursing needs.

Developing Core

Cleft palate is a fairly common congential malformation. It constitutes a failure in the embryonic

Student Learning Activities

1. Have students review the anatomy and physiology of the digestive tract stressing the oral cavity and teeth formation.

Objective 5-continued

development of the child. A cleft palate my involve lack of fusion of only part of the hard palate or may extend along the entire roof of the mouth. A cleft palate is repaired to the child's individual needs.

2. Review the first trimester embryonic development.

3. Review hospitalization of the infant. Meeting the physical and psychological needs should be outlined.

4. Discuss at length preparation of the parent and infant for hospitalization.

5. Have students develop a pre-operative nursing care plan. (Ideally the infant should enter the hospital several days prior to operation)
   a. prophylactic measures
   b. special aspects of pediatric nursing
   c. nursing care meeting daily basic needs

6. Analyze the role of the mother involved in assisting the nurse in the care of her infant.

7. Assign students to develop an immediate postoperative nursing care plan for the infant having this surgery.

   a. positioning-purpose
   b. constant nurse attendance
      immediate complications
   c. restraints
   d. treatments (equipment)

8. Direct students to develop a postoperative nursing care plan. Stress the role of the parents. Discuss the nurses role as a substitue mother.

Remedial

Review material. Offer help to individual students where needed.

Enrichment

Select one student to research and discuss handicaps of the child with a cleft palate.

Objective 5-continued

Select a student to develop a discharge plan for this infant and discuss this plan with his/her mother.

Have students research community agencies-local, state, and national, which are available to families confronted with this condition. Summarize information in a class discussion.

TODDLER (ONE TO THREE YEARS)

Developing Core

The toddler stage which is the transition from baby to child is an unsettled and disorderly period. Physical growth is erratic and psychologically, the big discovery for the child is being an independent person from his/her mother.

Objective 1: The student will be able to recognize and describe normal growth and development of the toddler.

Student Learning Activities

1. Have the student discuss growth and development changes in the toddler.

   Physical
   a. height and weight
   b. general body proportions
   c. changes in bones, skin, and teeth
   Motor
   a. locomotion (walking)
   b. manual dexterity (play)
   c. communication (speech)
   Psychosocial
   a. ritualism
   b. dawdling
   c. temper tantrums

2. Discuss the role of parents in the guidance and discipline of the toddler.

3. Discuss the toddler's strivings for autonomy in relation to parents, siblings, and peers.

4. Divide students into three groups. Assign:
   Group I-Bowel control
   Group II-Bladder control-day and night

241

Objective 1-continued

Group III-Temper tantrums
Lead discussion, compare textbook to mothers' experience.
Summarize information.

5. Discussion group-teacher and students, "When a New Baby Arrives." Review reference readings. Emphasize common sense.

Remedial

Schedule teacher and student conferences.

Enrichment

Select two or three students to research parent plan for enrichment of the toddler i.e. excursions, home environment.

Assign two students to research:
Nursery for the toddler of the-working mother
Nursery for the toddler who is a gifted child.
Present these reports in a class discussion.

Objective 2: The student will be able to identify the nutritional requirements of the toddler.

Developing Core

This is the age period when most feeding problems appear. The child's growth slows down and yet a balanced diet including proteins, carbohydrates, minerals, vitamins is essential for health and a sense of well being.

Student Learning Activities

1. Discuss nutritional requirements of the toddler at various levels. Reinforce the strong drive for independence in relationship to the child's appetite. Include serving food, eating with the family, and finger eating foods.

2. Discuss relationships of adequate nutrition to good teeth.

3. Have students plan a menu for the day. List foods and amounts. Evaluate assignment and reinforce essential nutrients.

Objective 2-continued

4. Discussion group-Teacher and students "Weaning to Solid Foods" stress approaches to the problems most likely to occur i.e. nutrient deficiencies, economic, and psychological factors.

5. Assign students to read the Dairy Council's pamphlet on Problems of Feeding. Discuss and summarize this material.

Remedial

Review material. Offer individual help to students encountering difficulties.

Enrichment

Select students to visit Pediatric Dental Clinics. Share these observations with the total class.

Objective 3: The student will be able to demonstrate competence in identifying and evaluating the extent and mechanisms of mild injury.

Developing Core

Few toddlers escape the early years without suffering some variety of head injury.

Student Learning Activities

1. Have each student list on mild injury and first aid measures taken.

2. Develop with students an imaginary head injury. Evalute extent and treatment (home preferred). Suggest bruising or lacerations and simple concussion.

3. Discuss the statement "Accidents kill more children than any single illness."

4. Assign students to report on accidental poisoning. Expand on incidence, safety, and public education.

Remedial

Review material. Offer individual help.

Objective 3-continued

Enrichment

Assign two students to report on local Poison Centers. Assign two students to report on available books or pamphlets on prevention of accidents and/or poisoning.

Objective 4: The student will be able to give safe, effective nursing care to a toddler with short term-moderately complex nursing needs.

Developing Core

Inflammations of larynx may cause hoarseness, barking cough, obstruction to breathing, or a combination of these. in young children these inflammations tends to cause spasmodic laryngitis. Also, these have a tendency to recur in children during a respiratory infection.

Student Learning Activities

1. Have student review the anatomy and physiology of the respiratory system.

2. Explain to students how a catarrhal inflammation of the larynx causes spasmodic contraction of the larynx-resulting in etiology, signs and symptoms, diagnosis, and treatment.

3. Develop with students a nursing care plan-"croup"
   Home-Room humidifier
   Hospital-Croup tent

4. Identify hospitalization of the toddler.

5. In clinical laboratory plan for student to have a child with croup.

6. Nursing care plan discussed with team members in conference. Record on Nursing Care Plan-Peds Unit.

7. Discussion-Teacher and Students "Illness and Resulting Regression" and "Contunity of Nursing Care".

Enrichment

Assign students to discuss "How to keep your cool during the toddlers spasmodic attack".

344

Objective 4-continued

Reinforce: Inspiration and expiration, accessory muscles, ribs diaphragm.

Objective 5: The student will be able to give safe, effective nursing care to a toddler with long term moderately complex nursing needs.

Developing Core

Mental retardation refers to children who as a result of inadequately developed intelligence are significantly impaired in ability to learn and adapt to society demands.

Student Learning Activities

1. Define mental retardation.

2. Discuss testing physical and intellectual measures.

3. Review etiological factors including prenatal, perinatal. and postnatal causes.

4. Define and discuss preferred terms denoting mental retardation i.e. mildly, moderately, severely, and profoundly.

5. Discuss ways of meeting needs of mentally handicapped child. Include the roles of parents, siblings, relatives, and friends.

6. Present major aspects of hospitalization of the mentally retarded child. Include the nurses role, stress knowing the normal in order to have an understanding of abnormal, and the parents role.

7. Direct students to develop a plan of teaching self-help to the child. Allow students to choose specific age levels and problems. Fifteen month old child and bowel training.

8. Investigate and summarize federal and local resources available to these children and their families.

Enrichment

Debate Resolved: That home care of the profoundly retarded child is superior to institutional care.

345

MATERNAL CHILD HEALTH
PRE-SCHOOL CHILD (THREE THROUGH FIVE YEARS)

Objective 1: The student will be able to recognize and describe normal growth and development of the pre-school child.

Developing Core

The pre-school child's growth and development is characterized by plateaus and spurts. The average child of three is a fairly independent person who changes from a chubby toddler to a thinner child. He/she develops motor control, skill in finer movements, and is able to control the environment enabling him/her to be more confident.

Student Learning Activities

1. Discuss with students the growth and development occurring in the child on three levels: 3 to 4 years, 4 to 5 years; and the 5 year old. Allow students to respond with examples.

2. Have students develop a plan on "Language Development" occurring in the three levels. Present these plans in a class discussion.

3. Discuss sex differences including aspects of the child's curiosity, sex play, masturbation, and sex education. The role of the parents in these areas should be stressed.

4. Have students research the development of social relationships occurring during this age period. Summarize major aspects.

5. Assign students to develop a social interaction and an educational experience for the pre-school child.

Enrichment

Select students to visit and interact with children in nursery schools, day care centers, and head start programs. Share observations with total class.

SCHOOL AGE CHILD (SIX TO ELEVEN YEARS)

Objective 2: The student will be able to recognize and describe normal growth and development of the school age child.

346

Objective 2-continued

Developing Core

The school age child has a slow but steady growth ending with a pre-adolescent growth spurt. Most school age children enjoy good health during these years.

Student Learning Activities

1. Discuss with students growth and development of this age period. Include physical and emotional aspects.

2. Have students develop a plan to be discussed in a round table discussion on "School Days". Allow students to select a specific topic i.e.
   a. parents role
   b. teachers role
   c. physical health
   d. mental health
   e. readiness
   f. sex education
   g. guidance and discipline
   h. peers role

3. Discuss with students the topics "The Secretive Years" and "Climate of Security" appearent in this age period.

4. Assign students to develop a comparative study on growth and development during the school age years. Select specific age levels and sex for each student ensuring that all areas are included.

5. Have students develop a plan on preventive health services for school-age children. Summarize this plan.

Enrichment

Have students who are mothers and have visited the classroom of "Johnny", share experiences.
Have students develop ideas on "Sense of industry versus inferiority."

Objective 3: The student will be able to identify the nutritional requirements of the pre-school and school age child.

Developing Core

A summary of the nutritional needs of this period follows: calorie intake increases water intake diminishes, mineral and vitamins

Student Learning Activities

1. Discuss specific nutritional requirements of pre-school and school age children.

2. Have students discuss school lunches including school served lunches and packed lunches.

344

Objective 3-continued

requirements are unchanged. The child's appetite is more reasonable and he/she enjoys companionship during meal time.

3. Have students discuss during and after school snacks. Stress nutritional aspects as well as individual likes and dislikes.

4. Reinforce the relationship of adequate nutrition to good dental health.

5. Have students plan a menu for a day listing specific foods. One half the group should be assigned menu development of the pre-school child and the other half the school-age child.

Enrichment

Have students visit and/or participate in nursery schools and day care centers.
Have students visit and if possible, participate in serving school lunches. Have students who are mothers share cooking of foods that appeal to children. List preferences at various age levels.

Objective 4: The student will be able to demonstrate safe, effective, nursing care to the pre-school child with short term-moderately complex nursing care.

Developing Core

When tonsils are to be removed, a period of two or three weeks following an acute infection should pass. The child should be free from infection and emotionally prepared.

Student Learning Activities

1. Review the upper respiratory system with emphasis on the anatomy and physiology of the tonsils and adenoids.

2. Discuss at length the etiology of tonsilitis and adenoiditis. Mention the pros and cons of surgical excision.

3. Discuss the effects of hospitalization on the pre-school age child. Present methods of preparing the child for this experience. Emphasize the supportive role of the nurse in relation to the child and his/her family.

4. Develop with students a nursing care plan on the child having a tonsillectomy. Include pre-operative (home and hospital), immediate post-operative, and post-operative care.

349

Developing Core

Rheumatic fever is a chronic disease of childhood. It occurs between the ages of six and twelve years. It is a leading cause of acquired heart disease in childhood. The highest incidence is among poor families living in crowded, unsanitary conditions.

Objective 4-continued

5. Assign students in the clinical laboratory to care for a child with a tonsillectomy. Appraise care given.

6. Discuss student developed nursing care plan with team members in conference, and then apply to the nursing care plan on the department.

Enrichment

Assign students to discuss with the doctor and team leaders parent discharge instructions, appointments, and convalescent care. Present possible complications and approaches to each.

Objective 5: The student will be able to demonstrate safe, effective, nursing care to the school age child with long term-moderately complex nursing care.

Student Learning Activities

1. Review the anatomy and physiology of the respiratory, cardiovascular, and musculoskeletal systems.

2. Discuss clinical aspects of rheumatic fever and its manifestations.

3. Develop with students a nursing care plan with emphasis on prevention of residual heart disease.

4. In the clinical laboratory, assign students to care for Child with rheumatic fever.

5. Share classroom developed nursing care plan with team members in conference on the clinical unit.

6. Develop with students a home nursing care plan. Stress necessary adaptations.

7. Discuss the nurse's role in the child's acceptance of hospitalization.

Objective 5-continued

8. Present etiology and incidence of recurrences, the purpose of prophylactic programs, and the need for continued medical supervision. Elicit from students how these three aspects would differ with the school age child, adolescent, and adult.

9. Direct students to investigate community resources available to the child with a long-term illness and his/her family.

Enrichment

Assign students to obtain information about homebound teachers and two-way closed T.V. circuit classroom instruction. Assign students to discuss "Overindulgence of a Chronically Ill Child."

350

MATERNAL CHILD HEALTH
PUBERTY AND ADOLESCENCE (ELEVEN TO EIGHTEEN YEARS)

Objective 1: The student will be able to recognize and describe normal growth and development during puberty and adolescence.

Developing Core

Puberty is the stage of growth at which the biological changes reach a climax. It is marked by the appearance of menarche in girls and the production of spermatozoa in boys. During puberty and adolescence the child is being transformed into an adult. It is a confused and unpredictable time. The teenager is struggling with the problems of transition and is frustrated frequently.

Student Learning Activities

1. Assign students to complete a comparative study on the growth and development of boys and girls during puberty and adolescence.

2. With emphasis on physical, intellectual, and psychosocial development, discuss fully the changes occurring in this age period.

3. Divide the class into four groups assigned to investigate these topics in relation to the adolescent

Self-image	Peer acceptance
Parental guidance	Adjustment to society

4. Form a panel discussion to present findings in these areas of adolescence.

Objective 1-continued

5. Ask students to demonstrate Erickson's developmental stage of "identity versus role confusion."

6. Discuss the role of the adolescent physician.

7. Elicit student responses on the advantage of an adolescent unit in a general hospital.

Enrichment

Encourage students who are mothers of adolescents to share their experiences with the class.
Arrange for students to attend adolescent clinics.

Objective 2: The student will be able to identify the nutritional requirements of adolescence.

Student Learning Activities

1. Discuss the nutritional requirements of the adolescent in relationship to the stage of sexual maturation, rate of physical growth, and the amount of athletic and social activity.

2. Obtain student suggestions of substitute basic food snacks for candy, pop, and potato chips in the school environment. Reinforce the relationship of good nutrition and healthy teeth and gums.

3. Assign students to plan a one-day menu for a fourteen year old football player. Adapt this menu to a low income family.

4. Encourage students to collect information on the latest thinking on the role of diets in the common adolescent condition of acne.

5. Discuss the hazards of fad diets during adolescent.

Developing Core

Because this age period is marked by great individual differences, it becomes impossible to set uniform nutrient requirements. The factors influencing nutritional requirements are the stage of sexual maturation, rate of physical growth, and amount of athletic and social activity.

Objective 2-continued

6. Allow students to assist the dietitian in adolescent nutrition teaching on the clinical unit.

Enrichment

Encourage students to visit the National Dairy Council Inc. to gather information on the latest trends in the nutrition of the adolescent.

Objective 3: The student will be able to demonstrate competence in the performance of simple nursing in minor illnesses.

Developing Core

Adolescents have an increased interest in illnesses because of their absorption in the body image and its changes. This intensified interest, coupled with the alert and curious nature of the teenager, provides a fine opportunity for sound health teaching.

Student Learning Activities

1. Present an overview of the physical problems and diseases commonly occurring during adolescence.

2. Discuss the predisposing factors and general management of adolescent acne. Reinforce the nurse's role in emotional support.

3. Role play situations in which the nurse is interacting with an adolescent girl who has a menstrual disturbance.

4. List the overt and convert causes of obesity. Include the latest theories such as:

   a. number of fat cells in infants may predispose to adult obesity.
   b. quality-quantity-frequency theory which states that food intake needs to be spread out during the day with no large quantities consumed at one time.
   c. behavior modification effectiveness

5. Ask students to interview an overweight teenager, analyze the individual, and determine the probable cause of his/her weight problem.

Objective 3-continued

6. Directs students to develop a plan of management for the obese adolescent. Include such factors as mental attitudes, cultural background, parents' role, style of living changes, peer approval, appetite control, medical supervision, and balanced diet.

7. Invite a speaker from "Weight Watchers" or have students who are members of this group share their experiences with the class.

8. Assign students to care for adolescent patients on the clinical unit. Appraise individual nursing care plans developed and evaluate actual care given.

9. Discuss and summarize the nursing care of the hospitalized adolescent using the problem-approach method.

Remedial

Counsel students concerning individual strengths and weaknesses.
Offer positive suggestions to improve weak areas.

Enrichment

Show and discuss the film:
Medical Care of the Adolescent
Merck, Sharp, and Dohme Drug Company, Philadelphia, Pa.

Objective 4: The student will be able to give safe, effective nursing care to the adolescent with short-term moderately complex nursing needs short-term moderately complex nursing needs.

Developing Core

Venereal disease is the most common communicable disease in major cities of the world. Syphilis and gonorrhea, the two

Student Learning Activities

1. Review anatomy and physiology of the reproductive system.

2. Have students develop a comparative study on gonorrhea and syphilis in men and women.

main venereal diseases, affect the reproductive tract primarily. Every socioeconomic level is affected and the incidence of these diseases is increasing. One case of VD does not confer immunity. Persons may be re-infected. The practical nurse should understand the epidemiology of venereal disease, how it is spread, and how it can be controlled

Objective 4- continued

3. Prepare nursing care plan on venereal disease, add pertinent contributions to the clinical unit care plan.

4. Direct students to determine factors in caring for themselves and in protecting others. Teach preventive measures.

5. Review preferred treatments including douche and sitz bath.

6. Discuss drug therapy used in treatment. Mention increasing resistance of the organism to penicillin.

7. Discuss long-term residual effects of gonorrhea and syphilis and how these can be eliminated.

Remedial

Have students outline related material; then offer individual assistance.

Enrichment

Arrange for selected students to attend a veneral disease clinic in a hospital or health department. Share observations with the class.
Invite a guest speaker to discuss contact finding and interviewing.

Objective 5: The student will be able to give safe, effective nursing care to the adolescent with long-term moderately complex nursing needs.

Developing Core

Alcoholism is a major health problem affecting ten million Americans. There has been an enormous increase in alcoholic consumption among middle and secondary school students.

Student Learning Activities

1. Discuss alcoholism. Define incidences, causes, symptoms, stages of illness, treatment, and complications.

2. Have available free pamphlets to alcoholism. Encourage students to write for personal copies.

354

Objective 5-continued

It is an illness that hurts others as well as the person with the disease.

3. Discuss television's approach to alcoholism. What more can be done?

4. Review the body absorption of alcohol in relationship to effects on the central nervous and respiratory systems.

5. Discuss resultant complications of prolonged alcohol usage including malnutrition, vitamin deficiency, anemia, brain and liver damage, and infections. Mention delirium tremens.

6. Instruct students to develop a nursing care plan, discuss with classmates or team members in a clinical conference. Add to involved patient's care plan.

7. Direct students to research available agencies to aid in the rehabilitation of the person with this problem.

355

Enrichment

Arrange for selected students to visit an alcoholic clinic or an alcoholics anonymous meeting and share experiences with classmates.
Invite a speaker from an alcoholic clinic to discuss the role of this agency.

Evaluation:

1. The student will be able to identify the individual needs of children in order to grow and develop into mature adults.

2. The student will be able to describe the usual patterns of each stage of child growth and development in terms of both physical and psychosocial characteristics.

3. The student will be able to identify the role of parents throughout various stages of development as well as their role when the child is hospitalized.

4. The student will be able to discuss the effects of heredity and environment upon physical and psychosocial development.

5. The student will be able to care effectively for children of varying ages with various conditions; demonstrate knowledge of pediatric safety, illnesses common to children, and empathy toward children and their families.

Evaluation (continued)

6. The student will be able to discuss the general concepts of deviation from normal behavior in children; identify and describe several specific conditions; and demonstrate effectiveness in dealing with children who have behavior disorders.

7. The student will be able to list congenital and chronic disorders of various body systems; disorders of metabolism and nutrition describe each condition in relationship to normal body structure and function as well as normal growth and development using medical terminology properly.

8. On the clinical unit, the student will be able to demonstrate competent, comprehensive care to pediatric patients.

HUMAN HEALTH CARE II

357

358

MODULE A
MEDICAL-SURGICAL NURSING II

Total Hours: 35
2 class days
3 experience days

NURSING THE PATIENT WITH PROBLEMS OF LOCOMOTION II

Introduction: Care of the patient with complex conditions of the musculoskeletal system is presented in this unit, including arthroplasty and amputation. The principles of physical and psychological care of these patients are applicable to other areas of nursing. The restoration of the patient to optimum mobility and independence through rehabilitation will be emphasized.

Specific Objectives:

The student will be able to:

1. Define the purposes and types of internal fixation and explain the special nursing considerations involved in caring for this patient.
2. Describe the major aspects of medical and surgical management and related nursing measures in the care of patients with complex musculoskeletal impairment including arthroplasty and amputation.
3. Develop a nursing care plan for effective emotional support to patients facing major musculoskeletal surgery or the loss of a limb.
4. Determine the community resources available to the patient and his/her family confronted with a complex long-term musculoskeletal condition.
5. Develop a complete plan of care, emphasizing rehabilitation patterns, for the patient with an arthroplasty and amputation.
6. Demonstrate the ability to give competent, comprehensive care to patients with complex musculoskeletal disorders.

References

Written

Baker, Charles W. Physician's Desk Reference, ed. 29, Oradell, New Jersey: Medical Economic Company, 1975

Audio-Visual

Pictures, x-rays, or examples of:
Limb Prosthesis
Vitallium Cup

359

References-cont.

Written

Larson, Carol B. and Marjorie Gould. Orthopedic Nursing, ed. 7, Saint Louis: C.V. Mosby Company, 1970. (Formerly Calderwood's Orthopedic Nursing)

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ella M. and Caroline Bunker Rosedahl. Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Shephard, Katherine F., Louise M. Barsotti, Nursing Outlook, September 1975-Family Focus, Transitional Health Care.

Audio-Visual

Films:
Total Hip Replacement
Total Knee Replacement

Source: Lilly Educational Resources Program
Department M.C. 340

Eli Lilly & Company
P.O. Box 100 B
Indianopolis, Indiana 46206

360

Objective 1: The student will be able to define the purposes and types of internal fixation and explain the special nursing considerations involved in caring for this patient.

Developing Core

Some types of fractures require an operation, internal fixation, for restoration of the fracture fragments into anatomic position for better alignment.

Student Learning Activities

1. Have students review principles of care in treating fractures.

2. Review with students various methods used to maintain fracture fixation. Include casts, splints, continuous traction, pin and plaster technique and internal fixation.

3. Define internal fixation. Explain aligning bone fragments with fixation devices nails, plates, screws, wires, and rods. Also, additional fixation with or without casts and/or splints.

Objective 1-continued

4. Review pre-operative care and fully discuss immediate postoperative care.

5. Develop with students nursing management. Stress important aspects as preparation of unit, nursing observations, drug therapy, medical management, specific nursing care, rehabilitation, patient teaching, and home referrals.

6. Plan for student to care for a patient with internal fixation on the clinical unit.

7. Develop with team members during conference, a nursing care plan to meet the needs of the individual patient.

8. Conduct a clinical conference for a selected patient with internal fixation.

Enrichment

Develop a comparative study of internal fixation between the child and the geriatric patient. Discuss in a group session noting differences.

Remedial

Visit a patient with internal fixation to observe nursing management.

Objective 2: The student will be able to describe the major aspects of medical and surgical management and related nursing measures in the care of patients with moderately complex musculoskeletal impairment including arthroplasty and amputation.

Developing Core

The student practical nurse will encounter many situations which will

Student Learning Activities

1. Review the medical management of arthritis. Discuss reasons necessitating surgery.

Objective 2-continued

Developing Core	Student Learning Activities
require much understanding of human nature in caring for patients with long-term, complex, musculoskeletal impairments.	2. Define and explain: arthrodesis and arthroplasty. 3. Have students examine x-rays or pictures of the vitallium cup. 4. Discuss special nursing care considerations related to the care of this patient. Stress observation of patient for symptoms of pulmonary or fat emboli. 5. Assign students to present a short research paper on recently developed surgical techniques including synovectomy, arthroplasty, arthrodesis, joint replacement, and total hip replacement. 6. Discuss reasons for amputations and ways in which the underlying condition could have been prevented. 7. Identify types of amputation procedures. 8. Present pre and postoperative care, emphasizing special management including rigid plaster dressings and immediate post surgical fittings, care of the stump, and exercise programs. Mention phantom limb sensation. 9. Fully explain the prosthesis, including prescription, fitting, cost, and care. Discuss patient's adjustment to it. 10. Conduct a clinical conference for a selected patient with amputaion. 11. Visit physio-therapy department to observe rehabilitation of a patient with amputation. <u>Enrichment</u> Arrange for students to observe joint replacement or amputation procedure in the operating room.

362

Objective 2-continued

Remedial

Visit a patient with amputation to observe nursing management.

Objective 3: The student will be able to summarize effective emotional support to patients facing major musculoskeletal surgery including the loss of a limb.

Developing Core

The student practical nurse must examine his/her personal feelings on the loss of the limb before there can be full understanding on the part of the nurse of the emotional distress expected in these situations.

Student Learning Activities

1. Discuss the emotional impact of an impending amputation. Give students sufficient time to express personal feelings.

2. Divide the students into groups and direct each group to list problems and suggested approaches for necessary amputation occurring in the infant, child, adolescent, adult, and geriatric person. Conclude differences and similarities after class presentations.

3. Present the statement: "Most patients can return as useful members of society." Elicit from students the components necessary to achieve this. Have them identify factors which could slow this progress.

Enrichment

Have students talk with patients and their families about personal thoughts on impending surgery for an arthroplasty and amputation. Encourage students to relate this experience to the class.

Objective 4: The student will be able to determine the community resources available to the patient and his/her family confronted with complex long-term musculoskeletal conditions.

363

Objective 4-continued

Developing Core

In the United States many services are available to patients who find themselves in unfortunate health circumstances. One of the chief responsibilities of the practical nurse, particularly in the comprehensive care of the patient with musculoskeletal impairments, is to become familiar with appropriate agencies and services available in the community.

Student Learning Activities

1. Present ramifications of long-term musculoskeletal conditions.

2. Direct students to compile a list of local agencies providing services to disabled persons with musculoskeletal disturbances. Mention national, state, and local agencies.

3. Assign students to prepare a report on the Arthritis Foundation.

4. Direct student to investigate the referral procedure for patient vocational counseling and job placement.

5. Give students time to peruse booklets from the Arthritis Foundation. Encourage questions and comments.

Remedial

Assess students' weak areas and counsel them accordingly. Review notes, assign reading material.

Enrichment

Invite a person from the Bureau of Vocational Rehabilitation to discuss this organization's role in assistance to the patient and his/her family.

Write a report after visiting a local rehabilitation agency.

Objective 5: The student will be able to develop a complete plan of care, emphasizing rehabilitation needs for the patient with an arthroplasty and amputation.

The nurse and other members of the rehabilitation team have a responsibility to help the patient to become functionally

1. Develop with students guidelines of nursing management in assisting patient to restore function to maximal extent in an arthroplasty. Include continous management,

Objective 5-continued

Developing Core	Student Learning Activities
independent in activities of daily living.	crutch walking, balanced suspension with traction, lying and sitting exercises. 2. Repeat guideline development in the nursing management of the patient with an amputation. 3. Present the role of the rehabilitation team: orthopedic surgeon, prosthetist, physical therapist, occupational therapist, social case worker, vocational counselor, family and nurse. 4. Form a panel discussion to discuss complications to avoid in later years. Possible subject areas: obesity, circulatory insufficiency, and hypertension.
	Objective 6: The student will be able to demonstrate the ability to give competent, comprehensive care to patients with complex musculoskeletal disorders.
A major role of the health team is to make the maximum application of existing knowledge and resources to reduce the incidence of long-term residual effects of musculoskeletal disturbances.	1. Assign student to patients with relatively complex nursing care requirements. Observe student-patient interaction. 2. Assess nursing care plan developed by the student. Question unclear statements and make suggestions-check assignment. 3. Question student on patient's individual Kardex: drugs, treatment, and diagnostic tests. Compliment strengths. Identify weaknesses and suggest ways of improvement. 4. Evaluate individual student's reporting and recording. 5. Review assigned patient's chart-discuss information pertinent to formulation of the nursing care plan. Enrichment Allow student to assess pain of his/her patient and administer nursing measures and medication to alleviate this situation.

365

Evaluation:

1. The student will be able to define internal fixation; list types; explain purposes..
2. From a nursing care plan, the student will be able to specify adjustments to be made in caring for this patient.
3. The student will be able to describe two primary dangers for the patient following amputation.
4. The student will be able to identify four emotional reactions to amputation.
5. The student will be able to list and explain the care of the stump and management of prosthesis.
6. The student will be able to name three community agencies to refer patient and family requiring long-term care.
7. The student will be able to demonstrate ability to give competent, comprehensive nursing care to patient with musculoskeletal problems.
8. The student will be able to assist the patient and his/her family to make the transition from hospital to home [illegible]ement less traumatic by exploring possible problems and their solutions.

366

Total Hours: 35
2 class days
3 experience days

NURSING THE PATIENT WITH CARDIOVASCULAR DISORDERS II

Introduction: In this unit the student becomes acutely aware of the responsibilities involved in caring for patients who have more complex cardiovascular disorders, chiefly coronary artery disease. These diseases are discussed in all aspects with the emphasis on appropriate nursing considerations and the utilization of community resources.

Specific Objectives:

The student will be able to:

1. Describe coronary artery disorders including angina, myocardial infarction, and congestive heart failure, inculding etiology, symptoms, therapeutic management, diet and drug therapy, nursing care, and rehabilitation.
2. Demonstrate the ability to carry out the appropriate nursing measures to assist the patient with coronary artery disease in meeting his individual needs.
3. Summarize infectious heart conditions, including causes, incidences, symptoms, medical management and nursing care.
4. Explain the need for heart surgery, recognize the advances occurring in this area, and discuss the emotional aspects involved.
5. Identify the community resources available to assist the patient with a cardiovascular disorder and his/her family in achieving optimal rehabilitation.

367

References

Written

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3 Philadelphia: J.B. Lippincott Company, 1975.

Falconer, Mary W. etal. The Drug, The Nurse, The Patient, ed. 4, Philadelphia: W.B. Saunders Company, 1975.

Audio-Visual

Trainex:
- Cardiac Emergency Care
- Congestive Heart Failure
- Myocardial Infarction
- Nursing Care

References-cont.

Written

Smith, Dorothy W. and Carol P. Germain
Nursing of Adults, Philadelphia: J.B.
Lippincott Company, 1972.

Audio-Visual

Film:
Source: American Heart Association
Mitral Commissurotomy

Objective 1: The student will be able to describe and discuss the etiology, symptoms, therapeutic management, diet and drug therapy, nursing care and rehabilitation of coronary artery disorders, including angina, myocardial infarction, and congestive heart disease.

Developing Core

Coronary artery disease is the number one heart disease today and there are strong indications that the incidence is continually increasing. It is estimated that by the age of thirty, twenty-five percent of the coronary arteries are occluded.

Student Learning Activities

1. Review the structure and physiology of the heart. Discuss the deviations occurring in this disease and the resultant damage.

2. Although the causes is unknown, present the various research theories of possible causes of coronary heart disease. Have student compile a common characteristics list and develop a "high-risk" profile.

3. Discuss the association of coronary artery disease and a high-fat diet. Have students list high-fat, high-cholesterol foods without aid of reference materials. Appraise each student's knowledge and give additional sources.

4. Present all aspects of angina pectoris and myocardial infarction. Assign related reading material and review.

5. Show and summarize Trainex:
   Myocardial Infarction
   Nursing Care

368

Objective 1-continued

6. Illustrate initial first aid administered to the victim of a coronary heart attack.

7. Show and summarize Trainex:
   Cardiac Emergency Care

8. Diagram the physiology of congestive heart failure. Explain left and right sided failure.

9. Show and summarize Trainex:
   Congestive Heart Failure

10. Complement trainex by presenting additional measures of management and care.

11. Give the students a list of specific drugs used in the treatment of coronary artery disease and congestive failure, and have them determine the physiological action occurring that will help control the disease.

Enrichment

Present a clinical conference on "The Patient with a Myocardial Infarction."

Objective 2: The student will be able to demonstrate the ability to carry out the appropriate nursing measures to assist the patient with coronary artery disease to meet his needs.

Developing Core	Student Learing Activities
The practical nurse should keep in mind that the major objective in caring for the patient with a serious cardiac condition is to provide him/her with physical and emotional rest.	1. Assign students to give total care to patients with moderately complex cardiovascular disorders. 2. Discuss plan of nursing care developed by student. Question student on underlying principles and make suggestions.

Objective 2-continued

3. Appraise actual nursing care given by students.

4. Direct students to read and compare histories, tests and medical management of patients with cardiovascular diseases.

Remedial

Assign additional reading material and counsel individual students.
Provide students with special constant observation.

Enrichment

Allow student to assist with critical care of patients with coronary disease.

Objective 3: The student will be able to summarize infectious heart conditions, including causes, incidences, symptoms, medical management, nursing care, and rehabilitation.

Developing Core	Student Learning Activities
Organic heart disease frequently results from microorganisms invading the entire heart. An acute attack can produce residual effects that abruptly change the life style of the patient who is often in his/her most productive period.	1. Discuss all aspects of rheumatic fever, subacute bacterial endocarditis, and cardiovascular syphilis. 2. Have students relate ways of eliminating predisposing factors that contribute to infectious heart disease. 3. Direct students to choose appropriate diversional activities for the patient with chronic rheumatic heart disease. 4. Role-play a situation in which the adult patient must limit his/her activity. Anticipate emotional responses and respond to each.

Objective 4: The student will be able to explain the need for heart surgery, recognize the advances occurring in this area, and discuss the emotional aspects involved.

Developing Core

Heart surgery is viewed as a new chance at life for many persons, because often there is no other treatment which can help them. Patients and their families facing impending cardiac surgery are very apprehensive and the practical nurse most likely will encounter the patient preperatively. He/she and the family should know the patient as well as possible in order to offer the necessary support and understanding.

Student Learning Activities

1. Discuss the common conditions necessitating heart surgery.
2. Differentiate between open and closed surgical techniques.
3. Allow students to examine pictures of heart-lung machines. (Pump oxygenator). Summarize use of these machines.
4. Direct students to collect information from newspapers, magazines, and periodicals on the latest advances in heart surgery.
5. Have each student respond to the statement, "I have to have heart surgery and I feel..." by writing a paragraph expressing the emotional responses occurring.
6. Describe ways of anticipating supportive needs of the patient and his/her family.
7. Discuss the ethical aspects of transplants.

Enrichment

Show film: Mitral Commissurotomy
Source: American Heart Association

Objective 5: The student will be able to recognize the community resources available to assist the patient and his/her family in achieving optimal rehabilitation.

Cardiovascular disease can be prevented in many persons through proper health education and many

1. Discuss public education measures designed to prevent cardiovascular diseases. Obtain student responses as to effectiveness of these programs.

Objective 5-continued

of those who have circulatory impairments can be helped to live long, useful lives.

2. Develop a brochure on local community resources available to the patient. Direct students to collect information from phone directory and United Way materials. Include agency, address, and chief functions.

3. Invite a speaker from the American Heart Association to discuss latest trends and research in cardiovascular disturbances.

4. Divide class into groups and direct students to create diversional activities and develop rehabilitation plans for patient with cardiovascular impairment. Include specific diseases and family situations.

Enrichment

Encourage students to volunteer assistance in local Health-O-Ramas.
Visit a Cardiac Club meeting at a local hospital. Relate experiences to class.

Evaluation:

1. The student will be able to describe all aspects of the care of patients having coronary artery disorders including angina, myocardial infarction, and congestive heart failure.

2. On the clinical unit, the student will be able to demonstrate the ability to carry out appropriate nursing measures and therapy assist the patient with coronary artery disease in meeting his individual needs.

3. The student will be able to summarize infectious heart conditions, including etiology incidences, symptoms, medical management, and appropriate nursing care.

4. The student will be able to explain two common indications for heart surgery and emotional ramifications involved.

5. The student will be able to identify the community resources available to assist the patient and his/her family in achieving optimal rehabilitation.

Total Hours: 35
2 class days
3 experience days

NURSING CONCEPTS IN THE CARE OF PATIENTS WITH RESPIRATORY EMBARRASSMENT II

Introduction: Chronic respiratory diseases are a serious health hazard. The disability and loss of productivity of these patients present a great national loss in manpower and increased disability benefits. The objective of health education is based on prevention; early diagnosis; treatment; and rehabilitation. This unit provides the student an opportunity to assist or give nursing care to patients with chronic respiratory disturbances.

Specific Objectives:

The student will be able to:

1. Explain fully internal and external respiration and interpret the use of the accessory organs of respiration.
2. Demonstrate the ability to give safe nursing care to patients with advanced respiratory problems.
3. Assist in the preparation of patients for diagnostic procedures and interpret these to patients.
4. Recognize and use appropriate measures in the care of patients receiving oxygen and physiotherapy.
5. Determine the effects of medicine and diet in the treatment of patients with advanced respiratory diseases and accurately record and report these observations.
6. Assist the registered nurse in the evaluation of the patient and his/her family needs in preparation for discharge.
7. Discuss predisposing factors and common medical treatment of cancer of the lung; and demonstrate the ability to assist the patient to meet his/her individual needs.
8. Demonstrate the ability to give nursing care or assist the registered nurse in the care of patients with lung surgery.
9. Assist the registered nurse in giving nursing care to patients with respiratory insufficiency and respiratory failure.

References

Written

Baker, Charles E. Physician's Desk Reference ed. 29, Medical Economics Company, Oradell,

Audio-Visual

Demonstration Equipment

References-cont.

Written

New Jersey.

Chaffee, Ellen E. and Ester M. Greisheimer, Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Brunner, Lillian Shaltis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Falconer, Mary W. etal, The Drug The Nurse The Patient, ed. 5, Philadelphia: W.B. Saunders Company, 1974.

Memmler, Ruth Lundeen and Ruth Byers Roda, The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ellen M. and Caroline Bunker Rosedahl, Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Townsend, Carolyn E. Nutrition and Diet Modifications for the Nurse, Albany, New York: Delmar Publishers, 1972

Audio-Visual

Examples of Tracheostomy Tubes
Tracheostomy Cleaning and Suctioning Trays
Vital Capacity Apparatus

Film:
Sources: American Cancer Society
241 Fourth Avenue
Pittsburgh, PA 15222

Lung Cancer: Early Diagnosis and Management
3752 PE

Trainex:
Care of the Patient with Emphysema
What is Emphysema?
Care of the Patient with Water Sealed Drainage
Oxygen Administration
Respiratory Acidosis and Alkalosis
Tracheostomy Care
I.P.P.B. Assisted I
I.P.P.B. Assisted II
Ultrasonic Nebulizer

Phamphlets:
Tuberculosis League
5841 Bedford Avenue
Pittsburgh, PA 15219

References-cont.

Written

Wood, Lucille A. Nursing Skills For Allied Health Services, Vol. I, II, and III Philadelphia: W.B. Saunders Company, 1972.

Objective 1: The student will be able to explain fully internal and external respirations and interpret the use of accessory organs of respiration.

Developing Core	Student Learning Activities
Due to the high incidence of air pollution and smoking, the number of patients with chronic respiratory diseases has increased.	1. Review structure and function of the lungs diaphram and intercostal muscles. 2. Describe the effect of lack of lung function upon the diaphram and thoracic cage. Use the vital capacity apparatus to demonstrate function. 3. Draw a diagram to show the exchange of oxygen and carbon dioxide in normal respiration. 4. List the body need for oxygen and contrast this to the affect of carbon dioxide respiration. Use a flow chart to show high concentration effects on the body function of these two gases. 5. Compare the vital capacity of smoking and non-smoking students. Discuss differences.

Objective 2: The student will be able to demonstrate the ability to give safe nursing care to patients with advanced respiratory problems.

Chronic obstructive lung disease	1. As a class project have students develop a poster showing

375

Objective 2-continued

includes a group of conditions associated with chronic obstruction of air entering or leaving the lungs. The conditions are: chronic bronchitis; emphysema; and asthma.

signs and symptoms of C.O.L.D. or C.O.P.D. demonstrating obstructed air passages.

2. Allow students to compare x-ray films of patients with C.O.L.D. with normal x-ray films of the chest. Emphasize differences.

3. From previous classes on disposal of secretions, apply principles of preventive care to these nursing situations.

4. Assign students to give total patient care to patients with moderately complex respiratory impairment.

5. Appraise nursing care plans developed by students. Seek the "whys" of their priorities.

6. Evaluate nursing care, patient-student and staff-student interaction, recording and reporting actually done by the student. Conference individual students on findings.

Objective 3: The student will be able to assist in the preparation of patients for diagnostic procedures and interpret these to patients.

Developing Core

The objective of treatment is to slow the disease progress.

Assisting in the preparation of patients and obtaining of laboratory specimens is an essential part of nursing management.

Student Learning Activities

1. Direct the student to assist the technician or registered nurse with the collection of blood gases and then report to class preparation of equipment, laboratory requisitions, patient's preparation, and response to specific treatment.

2. Have students assist in the collection of sputum specimens for culture and sensitivity 24 hour sputum culture.

3. Lead a class discussion: select a patient experience, or text from clinical with C.O.L.D., students will present the medical and nursing management emphasizing the following:

376

Objective 3-continued

A. prevention and treatment of infection.
B. management of secretions of the bronchi.
C. use of I.P.P.B. and physical therapy.
D. environmental control in facilitating ventilation.
E. psychological support.
F. education of patient and his/her family

Objective 4: The student will be able to recognize and use appropriate measures in the care of patients receiving oxygen and physiotherapy.

Developing Core	Student Learning Activities
Physiotherapy and inhalation therapy are an important part of treatment for C.O.L.D. patients.	1. Allow students to visit the Inhalation Therapy Department with a patient and observe treatment. Report observations to class.
Advanced C.O.L.D. patients need frequent clearing of air passages.	2. Observe physiotherapist or nurse doing cupping, clapping, and postural drainage exercises. Follow up by assisting patient with exercises on the patient unit.
	3. Make a list of patient observations, noting hypoxia and discuss nursing management, emphasize patient need and family response.
	4. From inhalation therapy and patient care observations demonstrate throat suctioning and intubation, emphasize safety precautions. Use trainex.
	5. Have students assist in the preparation of a patient for bronchoscopy and follow through with observation of the procedure. Write a brief nursing care plan for his/her patient, include pre and post-operative care.

377

Objective 5: The student will be able to determine the effects of medicine and diet in the treatment of patients with advanced respiratory diseases and accurately record and report these observations.

Developing Core	Student Learning Activities
Chemotherapy is essential in the management of C.O.L.D. Restricted sodium in the diet is an important part of treatment in order to prevent fluid accumulation.	1. Explain from a C.O.L.D. patient's chart the list of drugs that he is taking in treatment. Have students develop medication cards and administer these drugs if possible. In discussion, compare these to suggested chemotherapy in textbooks, emphasizing patients needs and effectiveness of drugs in recording and reporting. 2. Discuss the patient's reaction to diet and explain low sodium in relation to patient needs. Show in summary: effects of drugs and diet on patient.

Objective 6: The student will be able to assist the registered nurse in the evaluation of the patient and family needs in preparation for discharge.

C.O.L.D. patients must learn to live within prescribed limitations.	1. Assign students to assist in the preparation of a patient with C.O.L.D. for discharge. Identify the following observations: A. patient response to using equipment B. understanding use of equipment C. emotional response of family to equipment and medication D. diet (low sodium or salt restricted) E. patient awareness of activity tolerance F. information given to family to provide support and promote patient health

Enrichment

1. Assign student visit to the pulmonary function laboratory with a patient and share observations with class.
2. Visit a teaching class for C.O.L.D. patients and report

Enrichment-cont.

to class.

View Trainex I.P.P.B. I and II
Ultrasonic Nebulizer

Objective 7: The student will be able to discuss predisposing factors and common medical treatment of cancer of the lung; and demonstrate the ability to assist the patient to meet his/her individual needs.

Developing Core

Cancer of the lung has increased remarkedly during the last twenty years.

Patients undergoing chest surgery need a great deal of physical and psychological support. A tour of the operating room and recovery room and explanation of chest tubes is a part of patient and family teaching.

Student Learning Activities

1. Make a diagram showing the increase in number of reported cases of cancer of the lung over past twenty years.

2. From a patient's chart (history sheet) list signs and symptoms of cancer of lung. Compare these with the textbook picture.

3. Encourage students to discuss from respective communities their experiences with persons having cancer of the lung.

4. Identify and explain the possible surgical procedures for cancer of the lung patients.

5. Explain patients and family's reaction to diagnosis and how their needs can be met by the health team.

6. Obtain students responses to meeting these needs.

Objective 8: The student will be able to demonstrate the ability to give nursing care or assist the registered nurse in the care of patients with lung surgery.

Patients undergoing chest surgery most frequently have chest tubes.

1. Demonstrate and discuss the safety precaution which must be observed in the care of patients with chest tube drainage.

379

Objective 8-continued

2. Differentiate after viewing trainex the application of principles applied to the patient.

3. Distinquish differences in equipment used in trainex and that which is used in the cooperating hospital.

Objective 9: The student will be able to assist the registered nurse in giving nursing care to patients with respiratory insufficiency and respiratory failure.

Developing Core

Respiratory insufficiency occurs because the exchange of oxygen and carbon dioxide is not sufficient to meet body needs.

This occurs in many conditions such as chronic obstructive lung disease and cancer of the larynx.

Student Learning Activities

1. Contrast the need for ventilation of a patient with C.O.L.D. to that of a patient with cancer of the larynx.

2. Demonstrate and discuss the safety precautions which must be observed in the care of a patient with a tracheostomy.

3. After viewing the trainex contrast the application of principles applied to the patient.

4. Evaluate the patient needs with C.O.L.D. and cancer of the larynx. Include all physical aspects. Differentiate the emotional needs of these patients and their families.

5. Direct students to develop a plan of care for the patient with a permanent tracheostomy after discharge from hospital. Orally discuss these plans.

Enrichment

Arrange for a speaker from "Lost Cord Club" to speak to the class and/or encourage students to attend a meeting of this group.

Evaluation:

1. The student will be able to review the pretest from previous knowledge of the respiratory system and retake the written exam from Human Health Care I.

2. The student will be able to determine recall of previous instruction and knowledge.

3. The student will be able to demonstrate knowledge of advanced respiratory diseases in meeting patients individual needs by applying nursing principles and practices with safety.

4. On a written test, the student will be able to exhibit by analysis and selection, knowledge of deviations from normal structure function, drugs, pre and postoperative care for patients with C.O.L.D. and cancer, diagnostic procedures, diet, and nursing skills.

5. The student will be able to demonstrate and explain safe, effective nursing measures utilized in meeting the needs of patients with a tracheostomy.

6. The student will be able to demonstrate the ability to function in the team concept when giving nursing care to patients with advanced respiratory diseases.

7. The student will be able to satisfactorily complete written assignments.

Total Hours: 32
2 class days
2.5 Experience days

BASIC CONCEPTS APPLIED TO PATIENTS WITH NEUROLOGICAL CONDITIONS II

Introduction: This unit is designed to help the student identify and give effective nursing care to the patient with neurologic injuries and surgery.

Specific Objectives:

The student will be able to:

1. Explain pathology resulting from injury or disease of the nervous system.
2. Identify causes of injury to spinal cord and brain; recognize and list emergency measures.
3. Give effective nursing care to the patient with neurosurgery.

References

Written

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Chaffee, Ellen E. and Ester M. Greisheimer. Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Falconer, Mary W. et. al. The Drug The Nurse The Patient, ed. 4, Philadelphia: W.B. Saunders Company

Shafer, Kathleen Newton et. al. Medical Surgical Nursing, ed. 5, Saint Lousi: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Audio-Visual

Trainex
Care of the Patient with a Head Injury
Surgical Treatment of Herniated Lumbar Disk

Stryker Frame

Objective 1: The student will be able to explain pathology resulting from disease or injury to organs of the nervous system.

Developing Core

A sound knowledge of normal anatomy and physiology is a prerequisite to the understanding of the deviations occurring from disease conditions and injuries. Perhaps these underlying principles are even more essential in the care of the patient with neurologic impairment than in other disturbances.

Student Learning Activities

1. Review anatomy and physiology of the nervous system.
2. List and discuss symptoms a patient may have resulting from destruction of the dorsal columns of the white matter of spinal cord.
3. Elicit from students explanations why an injury above the C-3 level of the spinal cord will cause death.

Objective 2: The student will be able to identify causes of injury to the spinal cord.

Head injuries most often result from automobile accidents. Injuries vary from minor scalp wounds to open fractures with severe damage to brain tissue.

1. Create a sociodrama of a patient with head injury including:
   a. care at scene of accident
   b. hospital care
2. Show Trainex: "Care of Patient with head injury". Group discussion and summarization.
3. Within the class develop a nursing care plan for patient including:
   a. observations
   b. rest
   c. dehydration and output
   d. diet
   e. self-evaluations of his/her nursing care plan
4. List and discuss emergency treatment. Include the "pack in ice" theory including precautionary measures in emergency room.
5. Role play the emergency care of an accident victim with a possible head injury.

383

Objective 3: The student will be able to give effective nursing care to the patient requiring neurosurgery.

Developing Core	Student Learning Activities
A craniotomy is a very frightening experience for both patient and family. The student can assist in reducing these anxieties if she understands pre and postoperative care of patient facing this surgery.	1. Compile a list of causes for performing craniotomy. 2. Students give report of the following: diagnostic tests; including physical and psychological preparation: a. pneumoencephalogram b. ventriculogram c. electroencephalogram d. neurological testing 3. Review the principles of preoperative nursing care and illustrate adjustments made for patient requiring brain surgery including verbal communication. 4. Direct students to develop a nursing care plan for post-operative nursing management. Modify to meet the specific needs of a patient following a craniotomy.
Injury and disease to the spinal cord demonstrates the interrelationship between orthopedics and neurology.	5. Have group list common causes of injury to spinal cord and discuss symptoms and list preventive measures. 6. Review and discuss pertinent diagnostic tests. 7. Discuss the principles of nursing adjusted to the needs of patient with injury to spinal cord including: position-movement, observation, hygiene, diet, pain, and observation of reaction to pain medication. 8. Assign students to visit the physical-therapy department. Compare rehabilitation of patient with spinal cord injury with a patient having a musculoskeletal disorder. Report to group.
Pressure on the spinal cord is treated by identifying the cause of pressure and removing the cause.	9. Have students explain term "slipped disk"; discuss causes; predisposing factors; methods of prevention; symptoms; diagnostic tests.

384

Objective 3-continued

10. Clinical Conference: assign students a patient with a ruptured disk. Compare patient's background with above. Justify differences.

11. Discuss conservative medical management and emphasize nurses' responsibility. Discuss correlation between neurology and orthopedics.

12. Have students practice being "patient" and turning on Stryker frame.

13. Show Trainex: "Surgical Treatment of Herniated Lumbar Disk".

14. Compare a laminectomy with a spinal fusion. Stress major limitations of spinal fusion.

15. Describe the postoperative nursing care and compare with conservative methods of treatment.

16. Summarize all aspects of patient care with a clinical conference.

385

Evaluation:

1. The student will be able to describe completely emergency treatment of a patient with head injury.

2. The student will be able to list significant observations of patient with brain injury.

3. The student will be able to give effective nursing care to patients with brain surgery.

4. The student will be able to discuss the interrelationship between orthopedics and neurology and give five illustrations.

5. The student will be able to give complete description of emergency treatment of patient with spinal cord injury.

6. The student will be able to give effective nursing care to patients with surgery of spinal cord.

Total Hours: 25
1 class days
2.5 Experience days

THE IMPACT OF AUDIO-VISUAL IMPAIRMENT IN THE INDIVIDUAL II

Introduction: Degenerative conditions of the eye and ear are tragically increasing each year despite greater emphasis on public education and preventive measures. The purpose of the unit is to alert the student to the many facts involved in the care of the patient with these impairments and assist him/her in attaining the knowledge, skills, and attitude necessary in providing these patients with optimal physical care and emotional support.

Specific Objectives:

The student will be able to:

1. Describe the disease course, medical and surgical management, and related nursing care of the patient who has degenerative disorders of the eye and ear including cataracts, detached retina, glaucoma, Meniere's Syndrome, and otosclerosis.
2. Discuss general nursing considerations in the pre and postoperative nursing care of the patient having eye and ear surgery.
3. Explain the special nursing needs of the patient who is partially sighted or blind.
4. Explain the special nursing needs of the patient who has a hearing loss or is deaf.
5. Apply principles of dietary management in the care of the patient with a sensory impairment.
6. Recognize the effectiveness of community resources available to the patient and his/her family in long-term rehabilitation.
7. Perform the skills necessary to give effective, safe, and supportive care to patients with degenerative disorders of the eye and ear.

References

Written

Baker, Charles E. Physician's Desk Reference ed. 29, Oradell, New Jersey: Medical Economics Company, 1975.

Audio-Visual

Braille Examples
Eye Prosthesis

References-cont.

Written

Falconer, Mary W. etal. The Drug, The Nurse, The Patient, ed. 4, Philadelphia: W. B. Saunders Company.

Memmler, Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ella M. and Caroline Bunker Rosedahl. Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Audio-Visual

Field Trips
School for the Blind
School for the Deaf

Objective 1: The student will be able to describe the disease course, medical and surgical management, and related nursing care of the patient who has degenerative disorders of the eye and ear including cataracts, detached retina, glaucoma, Meniere's Syndrome, and otosclerosis.

Developing Core

The danger of procrastination must be stressed in seemingly minor eye and ear conditions since some of these diseases progress rapidly, and permanent damage may occur quickly.

Student Learning Activities

1. Discuss deviation from normal structure and how vision is affected with a cataract disorder. List chief symptoms. Present types and incidences of occurrence and etiology.

2. Discuss how the surgery for congenital and adult or senile

387

Objective 1-cont.

Developing Core	Student Learning Activities
The student practical nurse will encounter patients who have developed degenerative disorders of the eye and ear and will require competent physical care and emotional support.	cataracts differ. Define and discuss cyrosurgery. 3. Obtain student responses to the statement-"A cataract can only be operated on when it is ripe." Explain a nurse's responsibility in answering this question. 4. Discuss nursing care, prognosis, and follow up care of the patient who has had a cataract extraction. Mention the prosthetic lens. 5. Review function of the retina and explain what happens when it becomes detached. List possible causes of this occurring. 6. Demonstrate immediate care for this condition. Relate symptoms. 7. Conservative treatment for this disorder has not been effective. Mention several techniques of surgical management available and more fully explain the laser beam technique. 8. Discuss related nursing care, follow-up plan and prognosis. Discuss the use of pinpoint glasses. 9. Define glaucoma, its increasing incidence and possible causes of both primary and secondary types. 10. List the symptoms. Define tunnel vision. Differentiate medical management for acute and chronic glaucoma.

388

Objective 1-cont.

Student Learning Activities

11. A patient with glaucoma needs assistance in accepting his/her disease. Role play this situation. Stress the necessity of medical care for the rest of life.

12. Conclude the essential factors in the successful control of glaucoma. Define iridectomy.

13. Identify the disease course of Meniere's Syndrome and the typical symptoms associated with this disorder. Explain caloric test.

14. Discuss therapeutic management, related nursing care and prognosis of this disorder.

15. Mention the work of Temporal Bone Banks Program for Ear Research.

16. List and define the kinds of deafness.

17. Introduce disease course, incidence, etiology and symptoms of otosclerosis.

18. Summarize operative procedures for otosclerosis. Include stapes mobilization, stape-dectomy, fenestration and Shea procedure. Define the use of otomicroscope.

19. Discuss related nursing care, patient teaching, and prognosis.

20. Divide class into groups and have each group develop a complete nursing care plan for patients with each disorder discussed. Present this care plan to total class.

<u>Remedial</u>

Review material in textbook and seek teacher assistance in summarizing important factors.

389

Enrichment

Seek further information in reference books and periodicals.

Objective 2: The student will be able to discuss general nursing considerations in the pre and postoperative nursing care of the patient having eye and ear surgery.

Developing Core

It is impossible to outline specific routines for pre and postoperative management of the patient who is having eye or ear surgery as this care varies greatly with the location, hospital, eye surgeon, and newer techniques being developed. Therefore, general principles of nursing care should be presented.

Student Learning Activities

1. Lead an oral review of pre and postoperative care in general.
2. Allow students to express their thinking on how pre and postoperative care might differ for the patient having eye or ear surgery.
3. Review common types of eye and ear operative procedures.
4. Direct students to summarize from notes the commonalities of nursing care for each surgical condition.
5. Have the total class develop general nursing considerations for pre and postoperative care of the patient having eye and ear surgery. Encourage participation from entire group. Seek the "why" for each point expressed.
6. List activities of daily living and develop adaptations for the patient with eye and ear impairment. Encourage creative thinking i.e. How does deaf person living alone hear the alarm clock.

Objective 3: The student will be able to explain the special nursing needs of the patient who is partially sighted or blind.

Despite the best medical and nursing care available, some patients

1. Discuss statistics on blindness. List causes. Once again, reinforce preventive measures. Define legal blindness.

390

Objective 3-continued

will become partially or totally blind. Unfortunately the incidence of blindness is tragically increasing each year. The student practical nurse will discover that the emotional reactions to threatened or actual loss of sight are often severe and the psychological support required is most challenging.

2. Obtain students reactions as to the differences in adjustment for the congenitally blind and for the person who loses his/her sight. Conclude thinking in each instance.

3. Allow students to experience blindness by blindfolding them for a short period of time.

4. Fully discuss the psychological aspects in adjusting to blindness and ways of coping with these emotional reactions. Mention "mistaken kindness."

5. Present a general rehabilitation plan for the newly blinded person keeping in mind that two thirds of blind persons lose their sight after the age of twenty. List handicaps present and how they can be greatly lessened.

6. Discuss artificial eyes. Include types, cost, care, and if available demonstrate this care. Invite a speaker from the Guild for the Blind to discuss newer techniques and trends in coping with blindness.

7. Mention Eye Banks and Corneal transplants.

Objective 4: The student will be able to explain the special nursing needs of the patient who has a hearing loss or is deaf.

Developing Core

It is estimated that over fifteen million persons in the United States have a hearing defect. For the majority of these people, this impairment began in childhood and for the most part these losses could have been lessened or even prevented with prompt, effective medical attention and proper health teaching.

Student Learning Activities

1. Discuss statistics on deafness. Review causes. Reinforce preventive measures.

2. Allow students to express thoughts on deafness and experience what it must be like. Have students cover ears and try lip reading.

3. List the handicaps that would be present and ways in which to cope with these.

Objective 4-continued

4. Research studies have proven that the deaf person has far more difficulty in adjusting to reality than the blind person. Discuss reasons for this as well as all psychological aspects involved in the adjustment to deafness.

5. Present a general rehabilitation plan for the deaf person. Differentiate between habilitation and rehabilitation.

6. Discuss hearing aids include use, effectiveness, care, cost, and maintenance. If available present an example of one, explain mechanism and demonstrate care.

Enrichment

Invite someone experienced in working with the deaf person to discuss newer techniques and trends in caring for these persons.

Objective 5: The student will be able to apply principles of dietary management in the care of the patient with a sensory impairment.

Developing Core

Apparently there is a direct relationship between good nutrition and eye health. Deficiencies in vitamins A, B, and C can cause pathological changes in the eye structure. Many doctors have instituted vitamin therapy as one aspect in the medical management of eye and ear conditions.

Student Learning Activities

1. Present the relationship between good nutrition and the sensory system.

2. List diseases that most frequently cause pathologic changes in the eye and ear. Relate the role of nutrition in these diseases.

3. Review the functions of the A, B, and C vitamins and relate how a deficiency of each can cause eye and ear manifestations.

4. Demonstrate teaching the blind patient to independently feed him/herself using the clock position technique.

Objective 5-continued

Developing Core	Student Learning Activities
	5. Assign students to eat a meal blindfolded. Present a class discussion to relate individual reactions, problems, and solutions.
	6. Discuss ways of ensuring adequate nutrition to the person who has impairment of the taste and smell senses. List most appetizing foods.
	7. Discuss food preparation adaptations for the person with visual or hearing impairment.
	Objective 6: The student will be able to recognize the community resources available to the patient and his/her family in long-term eye and ear impairment.
Treatment of some diseases of the eye and ear is often long and can periodically recur. This prolonged treatment, necessary especially in glaucoma and Meniere's Syndrome, may prove a serious financial and psychological burden to the patient and his/her family. Much support is provided by the health team and the available community resources.	1. Distribute copies of Braille examples and summarize the system. Explain "talking books." Discuss sign language.
	2. Fully discuss the mobility of the patient. Mention Seeing Eye Inc. and their procedures. Show or describe the specially constructed cane used by the blind.
	3. List types of jobs available to the blind person and explain where they might acquire the skills necessary to compete for these positions. Do the same for the deaf person.
	4. List the local, state, and ~~natural~~ national associations and resources available to assist the blind or deaf individual. Have information on each available.
	5. Direct students to develop a complete rehabilitation plan, including diversional activities for the blind and deaf persons. Have subsequent class presentations.

Objective 6-continued

Enrichment

Accompany students on a field trip to the School for the Blind. Discuss observations (individual) in a total class setting.
Repeat this experience at the School for the Deaf.

Objective 7: The student will be able to perform the skills necessary to give effective, safe, and supportive care to the patients with degenerative disorders of the eye and ear.

Developing Core

It is hoped that the student practical nurse will be able to transfer the underlying scientific principles and special nursing considerations learned in the classroom to the clinical unit without difficulty.

Student Learning Activities

1. Assign students to give total care to patients with more complex eye and ear disorders.

2. Discuss plan of nursing care developed by student. Question students about underlying principles and make suggestions.

3. Appraise actual nursing care given by students. Convey this to the student.

4. Direct student to utilize time on clinical unit to allow for reading and comparing histories, tests, and medical management of patients with eye and ear disturbances.

Remedial

Provide student with special constant observation. Offer positive suggestions.

Enrichment

Allow student to care for and accompany to the operating room a patient having eye or ear surgery.
Share observations with class.

Evaluation:

1. The student will take a written examination in relation to desease courses, medical and surgical management, and related nursing care of the patient who has degenerative disorders of the eye and ear.

2. The student will explain and summarize general nursing considerations involved in the pre and postoperative care of patients having eye and ear surgery.

3. The student will discuss fully the special nursing needs of the patient who is partially sighted or blind.

4. The student will identify and cope with special nursing needs of the patient who has a hearing loss or is deaf.

5. Given situations in which the patient has a sensory impairment, the student will apply principles of dietary management ensuring proper nutrition.

6. The student will recognize the effectiveness of the community resources available to the patient and his/her family in long term rehabilitation.

7. On the clinical unit, the student will perform the skills necessary to give effective, safe, and supportive care to patients with degenerative disorders of the eye and ear.

Total Hours: 35
2 class days
3 experience days

CONCEPTS BASIC TO THE CARE OF PATIENTS WITH GASTROINTESTINAL DISTURBANCES II

Introduction: The student will encounter many patients who have moderately complex, relatively long-term gastrointestinal disturbances. These persons will deserve and expect competent, effective nursing care. This unit is designed to assist the student in providing this care.

Specific Objectives:

The student will be able to:

1. Discuss medical management with emphasis on nursing care of patients who have a disorder of the mouth or have had oral surgery.
2. Describe the disease course, medical management, and related nursing care of patients who have complex, long-term gastrointestinal disturbances including cancer, peptic ulcers, and ulcerative colitis.
3. Discuss the psychological and physical aspects in the care of a patient with a colostomy or ileostomy.
4. Describe the disease course, medical and surgical management, and related nursing care of patients with disorders of the accessory organs including cancer, cholecystitis, cirrhosis, hepatitis, pancreatitis, and peritonitis.
5. Demonstrate effective and safe nursing care to patients who have complex long-term gastrointestinal disturbances including competency in performing special nursing procedures.
6. Identify the community resources available to the patient and his/her family with long-term gastrointestinal disturbances.

References

Written

Baker, Charles E. Physician's Desk Reference ed. 29, Oradell, New Jersey Medical Economics Company, 1975.

Audio-Visual

Trainex:
1. Colostomy Irrigation
2. Gastric and Gastrointestinal Decompression

363

References-cont.

Written

Chaffee, Ellen E. and Ester M. Greisheimer. Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1972.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Audio-Visual

3. Gavage Feeding
4. Nasogastric Intubation

Films:
Source: American Cancer Society
241 Fourth Avenue
Pittsburgh, PA 15222

Cancer of the Larynx and Hypopharynx-#3751 PE
Cancer of the Stomach-#3555
Caring for the Patient with a Colostomy-#3776
Diagnosis and Management of Cancer of the Colon and Rectum-#3741
Oral Cancer-#3748
Nursing Management of the Patient with Head and Neck Cancer-#3780 PE

Objective 1: The student will be able to discuss medical management with emphasis on nursing care of patients who have a disorder of the mouth or have had oral surgery.

Developing Core

Because of the emotional significance of the mouth, severe psychological reactions frequently occur when medical and nursing care involving the mouth is necessary. Many disease conditions affecting the mouth many not appear dangerous, but that can be uncomfortable, painful, and at times unattractive or even disfiguring.

Student Learning Activities

1. Discuss the emotional significance of the mouth.

2. Present major stuctures and their function. Include teeth, tongue, salivary glands, oral mucosa, and bone structures.

3. Using a model or diagram allow students to examine and identify the ~~integral~~ interior of a tooth.

4. List ways of preventing dental disease. Discuss general care of the teeth. Establish the correlation between good

397

Objective 1-continued

Developing Core	Student Learning Activities
It is imperative that the student practical nurse be knowledgeable in this area in order that he/she may best benefit the patient.	nutrition and dental health. Have students demonstrate proper toothbrushing and dental flossing. 5. Identify causes of specific diseases of the mouth. Emphasize preventive measures. 6. Define stomatitis, parotitis, leukoplakia, edentulous, prosthesis. 7. Present major aspects of tumors of the mouth and subsequent surgery. Mention radical neck dissection. Also fractured jaw and wiring. Use drawing to explain intricate wiring. 8. Discuss nursing care related to oral surgery and the special considerations involved. 9. Assign student to read related material in textbook. 10. Explain radiation therapy and nursing responsibilities in providing care. Stress precautions. 11. Discuss prognosis, follow up and rehabilitation for the patient with cancer of the mouth. Discuss psychological impact on family of patient in terminal cases. 12. Present nutritional aspects involved in these diseases. 13. Show and summarize Trainexes: Nasogastric Intubation Gavage Feeding 14. Identify purposes of a gastrostomy and explain feeding and modified care related to this patient management procedure. 15. Summarize pertinent nursing care measures of the patient with mouth disorders and oral surgery.

Objective 2: The student will be able to describe the disease course, medical management, and related nursing care of patient who have moderately complex, long-term gastrointestinal disturbances including peptic ulcers, cancer, and ulcerative colitis.

Developing Core

The student practical nurse will have frequent experiences in providing care and comfort to patients with rather complex gastrointestinal disturbances. An acute awareness of the major disorders affecting this system is essential in identifying the nursing needs needed to assist the patient in reestablishing optimal health.

Student Learning Activities

1. List and discuss the three factors that greatly influence the development of a peptic ulcer.

2. Compare and contrast gastric and duodenal ulcer factors. Explain how medical management might differ.

3. Discuss medical management of ulcers include rest, diet, drugs and preventive health teaching.

4. List probable complications requiring surgery. Define operative procedures i.e. gastric resection, vagotomy, gastrojejunostomy, gastroenterostomy, anastomosis.

5. Acquaint students with special procedures associated with gastrointestinal disturbances.

6. Show and summarize Trainex: Gastric and Gastrointestinal Decompression

7. Allow students to examine pictures or actual examples of nasogastric tubes including levin, cantor, blakemore. Discuss differences.

8. Summarize diet therapy principles in peptic ulcers-have students give rationale for each principle.

9. Allow students to respond to the question "Which dietary approach is more valid-the traditional conservative treatment or the liberal individual approach?" Seek evidence to support each response.

399

Objective 2-continued

Developing Core

Nursing care of patients requiring an ileostomy or colostomy requires perhaps more understanding and acceptance by the nurse than the majority of other disease conditions. Acceptance of the patients behavior along with interested, intelligent care greatly assists the nursing staff in gaining the patient's confidence and will increase his/her adjustment to essentials of treatment.

Student Learning Activities

10. Present recent statistics on the incidence of cancer of the gastrointestinal tract.

11. Discuss special nursing procedures in the care of the cancer patient pre-operatively, including special enemas and removal of fecal impaction.

12. Present major aspects of medical and surgical management to the patient with cancer or ulcerative colitis.

13. Discuss prognosis and follow up care of the above conditions. Include patient health education.

14. Summarize total patient care of these patients by developing a chalkboard nursing care plan with content supplied by student verbal responses. Assess methods of evaluation of nursing care.

Objective 3: The student will be able to discuss the psychological and physical aspects in the care of the patient with a colostomy or ileostomy.

1. Elicit from students responses that may be expected from patients who have been told that their condition warrants a colostomy or ileostomy.

2. From their knowledge of basic psychology, discuss which defense mechanisms might be employed and which would be the best way to cope with these reactions.

3. Assign students to present a profile to the patient with ulcerative colitis, then explain how characteristics of this basic personality will be greatly intensified when an ileostomy is inevitable.

Objective 3-continued

Developing Core	Student Learning Activities
	4. List anticipated problems and suggested approaches for solving these. Summarize pre and postoperative psychological aspects of the patient and family having a colostomy or ileostomy.
	5. Discuss specific nursing considerations to be expected in caring for the patient with ostomies.
	6. Show and summarize Trainex: <u>Colostomy Irrigation</u>
	7. Allow students to view pictures or examples of ostomy equipment.
	8. Give students a list of patient physical needs and have them, without the aid of references, explain how they would assure that the patient was getting proper care.
Objective 4:	The student will be able to describe the disease course, medical and surgical management, and appropriate nursing care of patients with disorders of the accessory organs including cancer, cholecystitis, cirrhosis, hepatitis, pancreatitis, and peritonitis.
The accessory organs of the gastrointestinal system are affected by a variety of disease, many of which need not necessarily occur if the public were better informed in good health and hygiene practices.	1. Describe common symptoms associated with diseases of the accessory gastrointestinal organs. Emphasis should be placed on the alleviation of problems associated with jaundice including pruritus, hemorrhage, and emotional ramifications. Have students discover why each of these problems occur and how to make the patient more comfortable.
A sound knowledge of the	2. Reinforce preventive factors in lessening the incidences

Objective 4-continued

Developing Core	Student Learning Activities
common diseases of these structures as well as the medical and nursing care essential to alleviating problems is essential in satisfactorily assisting the patient to regain optimal health.	of these disorders. 3. Discuss medical and surgical management of cancer of the liver, cholecystitis, cirrhosis, hepatitis, pancreatis, and peritonitis. 4. Differentiate viral and serum hepatitis and the etiology of each. Discuss reasons why this disease is greatly increasing. 5. Discuss complications occurring in cirrhosis of the liver and the management of these complications. 6. Show and summarize Trainex: <u>Abdominal Paracentesis</u> 7. Direct student to outline related material in their textbook. 8. Discuss nutritional therapy for the patient with cirrhosis: Discuss ways in which to increase his/her appetite. 9. Define operative procedures in biliary tract surgery: cholecystectomy; cholecystostomy; choledochlithotomy. Have student practice pronounciations and spellings. 10. Mention T-tube and its purpose and care. 11. Divide class into four groups and have each develop nursing care plans on a patient with: a. cholecystitis with subsequent cholecystectomy b. cirrhosis of the liver with esophageal varices c. viral hepatitis d. cancer of the pancreas

402

Objective 4-continued

Developing Core	Student Learning Activities
	Make copies of each plan and have the groups present their care plan to the class. Encourage students to make additions and corrections to the plans and access underlying principles.
	Objective 5: The student will be able to demonstrate the ability to provide effective and safe nursing care to patients who have moderately complex, long-term gastrointestinal disturbances including competency in performing special nursing procedures.
The student practical nurse should have ample opportunity to correlate underlying scientific principles with actual patient care on the clinical unit.	1. Assign students to give complete care to patients having relatively complex disorders of the gastrointestinal system.
	2. Assess students developed priorities plan and obtain rationale for their thinking.
His/her care plan should include all essential facts in providing comprehensive care to patients with complex gastrointestinal conditions, and his/her performance should reflect competency in administering this care.	3. Encourage reading of patient's charts by students and his/her researching or questioning drugs, treatments, laboratory tests, and terminology new to him/her.
	4. Assess the initiative of the student in seeking new procedures and suggesting additional ways to meet the patients individual needs. Evaluate participation in team conference.
	5. Supervise administration of related drug therapy and evaluate students knowledge transferred from the classroom.
	Objective 6: The student will be able to identify the community resources available to the patient and his/her family with long-term gastrointestinal impairment.

403

Objective 6-continued

Developing Core

Throughout the patient's hospitalization, the student practical nurse must be aware that he/she is a member of a family and of a community to which he/she will return. The prime objective in health care is to return the patient to the community as a useful citizen.

The health team has a responsibility to maintain channels of communications with others who may be better prepared to meet his/her needs.

Student Learning Activities

1. Assist class in developing a list of concerns for the patient with long-term gastrointestinal conditions. As each concern is introduced, discuss the rationale for it.

2. Provide students with reference materials, then working individually, direct them to identify specific agencies who would be of particular assistance in each concern.

3. Compare individual lists and compile a complete listing of these resources.

4. Encourage students to communicate with the home care liason person concerning the progress of patients for whom they have cared.

Enrichment

Invite a speaker from the Odontological society to discuss effective ways to prevent dental caries and peridontal disease.

Select student to observe a major operative procedure related to the gastrointestinal system:bowel resection, colostomy, gastric resection. Share experience with total class.

Invite a member of an "Ostomy Club" to discuss personal experiences.

Allow student to assist with a liver biopsy and care for the patient after the procedure.

Invite a representative of the American Cancer Society to

40.4

Enrichment-cont.

discuss this organizations role in assisting the patient and his/her family.

Evaluation:

1. The student will be able to list major disorders affecting the oral cavity.

2. The student will be able to discuss nursing care related to oral surgery and the special considerations involved.

3. Given a written test, the student will be able to demonstrate satisfactory knowledge in the major aspects of medical management and nursing care involved in the treatment of patients with peptic ulcers, cancer, and ulcerative colitis.

4. Without the use of reference materials, the student will be able to develop a complete nursing care plan for the patient with a colostomy or ileostomy and evaluate her/his nursing care plan.

5. The student will be able to summarize the major factors in the care of the patient with diseases of the gastrointestinal accessory structures including etiology, symptoms, medical and surgical management, and related nursing measures.

6. The student will be able to demonstrate the ability to provide the patient who has a moderately complex gastrointestinal impairment with effective and safe nursing care.

Total Hours: 35
2 class days
3 experience days

NURSING THE PATIENT WITH GENITO-URINARY DYSFUNCTION II

Introduction: Kidney disease can progress very rapidly and become fatal. The symptoms are very often insidious and require prompt medical attention. In addition, diseases of the reproductive system, in particular cancer, take many lives of both men and women. Research has contributed to making patients lives more comfortable and added to their longevity. This unit should help the student recognize his/her role in the prevention and treatment of these diseases.

Specific Objectives:

The student will be able to:

1. Explain the cause, preventive measures, and nursing management of the patient with glomerulonephritis.
2. Identify the diet needs of the patient in relation to the patient's symptoms and correlate this with chemotherapy.
3. Describe the convalescent care needed by the patient and the psychosocial aspects of the disease.
4. Discuss the concept of renal failure in relation to kidney disease, including acute, chronic, and tumor conditions and describe the surgical and non-surgical treatment including dialysis and transplant.
5. Demonstrate giving safe, effective, nursing care to patients with complex kidney disease.
6. Demonstrate assisting or giving safe effective nursing care to patients with mastectomy.
7. Discuss and describe the common medical and nursing care in disorders of the male reproductive system including the emotional needs of the patient and his family and demonstrate assisting or giving pre- and post-operative care.

References

Written

Baker, Charles E. Physician's Desk Reference, ed. 29, Medical Economics Company, Oradell New Jersey.

Audio-Visual

Anatomical Charts and Diagrams
Hospital Dietary Manual
"Reach to Recovery" booklets

References-cont.

Written

Brady's Programmed Orientation to Medical Terminology, Bowie, Maryland: Robert J. Brady Company, 1970.

Chaffee, Ellen E. and Ester M. Greiheimer, Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Brunner, Lillian Sholtis and Doris Smith Suddarth, Textbook of Medical Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Falconer, Mary W. etal. The Drug The Nurse The Patient, ed. 4, Philadelphia: W.B. Saunders Company.

Hospital Research and Educational Trust Anatomy and Physiology. The Respiratory System, ed. 3, Bowie, Maryland: Robert J. Brady Company, 1972.

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal. Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ellen M. and Caroline Bunker Rosdahl. Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973.

Townsend, Carolyn E. Nutrition and Diet Modification for the Nurse, Albany, New York: Delmar Publishers, 1972

Audio-Visual

Trainex: Acute Renal Failure
Breast Cancer and Mastectomy
Cancer of the Prostate
Complications of Advanced Cancer

Demonstration equipment
Hemovac
Breast Prosthesis

467

References-cont.

Written

Williams, Sue Rodwell, Mowry's Basic Nutrition and Diet Therapy, Saint Louis: C.V. Mosby's Company, 1945.

Wood, Lucille A. Nursing Skills for Allied Health Services, Vol. I, II, and III. Philadelphia: W.B. Saunders Company, 1972.

Objective 1: The student will be able to explain the cause, preventive measures, nursing management of the patient with glomerulonephritis.

Developing Core	Student Learning Activities
Glomerulonephritis is an inflammation of the renal golmeruli which affects both kidneys.	1. State, from previous information of prevention, the hygenic measures which aid in the prevention of nephritis. 2. Discuss the progressive disease as adverse to the acute form. 3. Identify the two common organisms which are the causative agents. 4. List the symptoms of an inflammation and contrast these to the progression of the disease. Describe the nursing intervention correlating these. 5. Discuss the major aspects of medical and nursing management. 6. Individually assess students ability to apply previous knowledge to this patient.

89.h

Objective 2: The student will be able to explain the diet needs of the patient in relation to the patient's symptoms and correlate this with chemotherapy.

Developing Core

Treatment for patients with nephritis depends upon medication and diet.

Student Learning Activities

1. Present the low sodium, low protein, and restricted fluids diet regime. Obtain from students the underlying principles involved in this therapy.

2. Instruct students to plan a one day sample menu for the patient whose diet includes these three restrictions.

3. Spend some time discussing innovative ways of improving the appetite of this patient.

4. Discuss drugs used to treat or prevent edema, cardiac failure, antibiotics for specific organisms, tranquilizers, anticonvulsants. Drug cards from previous units may be used-add any new drugs and complete cards.

5. Review laboratory and diagnostic tests. Have students compare test results from patients charts with the clinical "norms". Note differences.

Remedial

Have students reread and outline assigned material. Tutor those still having difficulty.

Objective 3: The student will be able to describe the convalescent care needed by the patient and the psychosocial aspects of the disease.

The patient and his family encounter many problems due to threatened life expectancy and economic strain.

1. Review and discuss a nursing care plan for a nephritic patient or formulate one as a class project.

2. Describe the patient's feelings about the disease. Use direct quotes, if possible. Analyze each.

Objective 3-continued

3. Discuss the family's emotional reaction to hospitalization. Include financial aspects.

4. Each student should briefly write his feelings toward the patient-how did the student handle personal emotional reaction to the disease.

5. Describe teaching necessary for the family and the patient-relate it to stages or advancement of disease process.

Enrichment

Discuss with social worker family plans for a patient with glomerulonephritis and report to class.

Objective 4: The student will be able to discuss the concept of renal failure in relation to kidney disease, including acute, chronic, and tumor conditions and describe the surgical and non-surgical treatment including dialysis and transplant.

Developing Core

Renal failure is a serious malfunction of the kidneys in which they cannot excrete waste products, maintain fluid and electrolyte balance, and therefore sustain life.

Student Learning Activities

1. Show trainex-"Acute Renal Failure". Summarize filmstrip.

2. List the causes of renal failure both acute and chronic. Discuss the signs and symptoms and prognosis.

3. Class discussion on prevention:
   a. drugs that are controlled by federal government
   b. obstruction
   c. pyleonephritis

4. Describe the general treatment and nursing care include fluid balance, prevention, and recognition of symptoms.

410

Objective 4-continued

5. Discuss complications and nursing intervention.

6. Discuss non-surgical treatment-hemodialysis and peritoneal dialysis.

7. Class discussion-feelings on legality of transplant and nursing care in chronic renal failure.

8. Discuss use of blood, donors, and cost to family. Reinforce nursing responsibilities during transfusion procedures.

9. Discuss "How can you contribute to the patients and family's emotional support?"

Enrichment

Visit a renal unit in hospital or ask for guest speakers to visit and discuss personal experiences in dialysis.
Write to National Kidney Foundation for information about programs, education, and donor registration.

Objective 5: The student will be able to demonstrate the ability to assist and/or render safe nursing care to patients with complex kidney disease.

Developing Core

Patients with advanced kidney and/or bladder diseases need close nursing supervision and management. The practical nurse should be an effective participant on the health team caring for such patients.

Student Learning Activities

1. Have students describe observations, concerning urinary drainage, diet, emotional support, and treatments for these patients. Practice reporting and recording pertinent facts.

2. Develop a nursing care plan for a patient with advanced kidney or bladder disease. Class should evaluate one anothers' nursing care plan by using textbook. Present these evaluations during clinical conference.

Objective 5-continued

3. Assist the class to write an evaluation of what they have learned or would like to learn about the patients and their families that will be helpful to them in giving or assisting with nursing care of patients with kidney problems. Each student should actively participate in this project.

4. Instruct students to prepare and present to the class a discussion on surgery for cancer of the bladder, ileal conduit, or other types of urinary diversion.

Objective 6: The student will be able to demonstrate the ability to assist or give safe, effective nursing care to patients with a mastectomy.

Developing Core	Student Learning Activities
Cancer of the breast is the most common malignancy in women. It is the leading cause of death in women in their early forties.	1. Show trainex: "Cancer of Breast and Mastectomy". Summarize and stress key points. 2. Discuss from trainex, textbook, and American Cancer Society literature, statistics and the estimated number of deaths due to cancer of the breast in women. 3. Assist students to formulate a plan for helping women in their neighborhood to do self breast examinations. 4. Allow student to accompany patient having a mammogram, accompany patient and share observations with class. 5. Discuss the emotional impact upon learning a diagnosis of cancer of the breast. Include all aspects. Relate common defense mechanism used and how to cope with these. 6. Debate the supportive care given by magazine articles on the reaction of Mrs. Ford to breast cancer and the image she and Mrs. Rockerfeller have portrayed to American women.

Objective 6-continued

7. Have a "Reach for Recovery" volunteer speak to class on emotional preparation for surgery and post-operative assistance with prosthesis and exercise at home.

8. Differentiate between a radical and simple mastectomy. Present latest research and trends.

9. With the total class involved, develop a nursing care plan, including pre and postoperative aspects, for a patient with breast surgery. Interpret the nursing intervention to meet the patient's needs in diet, drug, physical, emotional and rehabilitative care.

10. Discuss the cause of lymphedema and the nursing care involved.

11. Describe hormone therapy in the treatment of metastasis.

12. Mention additional surgical treatment to prevent spread of disease.

13. Define: fibrocystic, fibroadenoma.

14. Evaluate the students ability to assist and/or care for a patient with a mastectomy. Demonstrate the care of drainage utilizing the hemovac.

15. Have the student assist the registered nurse with the discharge preparation of a patient. Note and clarify his/her observations.

16. Describe to class the patient's reaction to discharge and husband's acceptance of the patient's post-surgical appearance. Discuss the emotional support given to the patient and her family by the health team.

413

Enrichment

Allow students to visit physiotherapy with a patient for exercise therapy and report observations to the class.

Encourage students to read the article: Easing the Shock of a Radical Vulvectomy. Source: Nursing Magazine, August, 1975; Vol. 5, No. 8 (pp. 26-31)

Objective 7: The student will be able to discuss and describe the common medical and nursing care in disorders of male reproductive system including the emotional needs of the patient and his family.

Developing Core

It is estimated that approximately half of all men over fifty years of age have some prostatic enlargement and that 15 to 20% of all men over fifty-five have microscopic cancer of the prostate gland.

Student Learning Activities

1. Define medical terminology of the male reproductive organs.
2. Show trainex: "Cancer of Prostate". Summarize key points.
3. Discuss from trainex, textbook, and American Cancer Society literature, statistics and estimated number of deaths due to cancer of the prostate. Note decreased or increased incidences.
4. Class discussion-"How can cancer of prostate be prevented?"
5. Describe the common symptoms of cancer of the prostate and hypertrophy.
6. Discuss and show from literature three different approaches to prostatic surgery.
7. Describe chemotherapy for inoperable cancer or metastasis. Research newer drugs.
8. Assess the student's ability to assist the patient pre and postoperatively, by giving safe, effective nursing care to meet his physical and emotional needs.

4/4

Objective 7-continued

9. Allow students to assist with a Kelly Infusion.

10. From patient observation discuss: Patient's reaction to surgery and his/her family's reactions. How can the male nurse offer emotional support.

11. Develop a nursing care plan for the pre and postoperative patient including diet, drugs, nursing intervention and emotional support.

12. Instruct students to formulate a plan of care for the home patient (postoperative with incontinence). Discuss the practical nurse's role in meeting the wife's needs in giving her husband both phyical and emotional care and support.

Evaluation:

1. The student will be able to explain fully the cause, preventive measures, and nursing management involved in the care of the patient with glomerulonephritis.

2. The student will be able to identify the dietary needs of the patient in relation to the patient's symptoms and correlate these needs with chemotherapy.

3. The student will be able to describe fully the convalescent care needed by the patient with glomerulonephritis emphasizing the psychosocial aspects.

4. The student will be able to develop a comprehensive nursing care plan for patients who have renal failure, cancer of the breast and prostatic impairment.

5. The student will be able to identify nursing needs of patients with complex disorders of the genitourinary system and formulate a plan to meet these needs.

6. The student will be able to work effectively as a team member on the clinical unit.

7. The student will be able to demonstrate the ability to assist or give nursing care to patients with complex disturbances of the urinary and female and male reproductive systems in a competent, effective manner.

Total Hours: 30
1 Class day
3.5 Experience days

NURSING THE PATIENT WITH METABOLIC IMBALANCES II

Introduction: The precision of the human body is controlled by the endocrine system. Its regulation is automatic and initiated by specific chemical signals. The dysfunction of these glands, in particular the thyroid gland, results in the need for medical and/or surgical treatment. The student assists in effective care by helping these patients to cope with their illness.

Specific Objectives:

The student will be able to:

1. Discuss and assist a patient in at least five tests for thyroid dysfunction.
2. Contrast the symptoms of Myxedema and Cretinism.
3. Describe the symptoms of hyperthyroidism and interpret the nursing intervention.
4. List three forms of hyperthyroidism treatment and discuss the medial and nursing management of each method.
5. Demonstrate pre-operative and post-operative teaching of the patient having a thyroidectomy.
6. Assist the registered nurse in patient teaching in relation to discharge and home care.

References

Written

Baker, Charles E. Physician's Desk Reference, ed. 29, Medical Economic Company, Oradell, New Jersey, 1975.

Chaffee, Ellen E. and Ester M. Greisheimer, Basic Physiology and Anatomy, ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Brunner, Lillian Sholtis and Doris Smith Suddarth Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Audio-Visual

Anatomical Charts and Diagrams
Drug Cards
Nursing Care Plans

Film: Source: American Cancer Society
Allegheny County Unit
241 Fourth Avenue
Pittsburgh, PA 15222
"Diagnosis of Thyroid Cancer"

Clinical Facility: Isotope Laboratory

References-cont.

Written

Falconer, Mary W. etal, The Drug The Nurse The Patient, ed. 5, Philadelphia: W.B. Saunders Company, 1974.

Memmler, Ruth Lundeen and Ruth Byers Roda, The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton etal, Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Thompson, Ellen M. and Caroline Bunker Rosdahl, Textbook of Basic Nursing, ed. 2, Philadelphia: J.B. Lippincott Company, 1973

Townsend, Carolyn E. Nutrition and Diet Modifications for the Nurse, Albany, New York: Delmar Publishers, 1972

Objective 1: The student will be able to discuss and assist a patient in at least five tests for thyroid dysfunction.

Developing Core

Thyroid dysfunction, over or under secretion, presents symptoms for assessment. Prior to a diagnosis a physician determines, through physical examination and laboratory tests, the extent of hypo or hyper secretion.

Student Learning Activities

1. Define and explain Basal Metabolic Rate, Radioactive Iodine Uptake, Proteinbound Iodine, T3 Red Cell Uptake, Thyroid Scan.

2. Allow students to examine sample results on each test.

3. Relate from personal experience or from hospital patient experience preparation for a thyroid scan.

4. Discuss nursing responsibilities for each test. Using role

Objective 1-continued

play, direct students to instruct patients on prescribed tests.

Objective 2: The student will be able to contrast the symptoms of Myxedema and Cretinism.

Developing Core	Student Learning Activities
Hypothyroidism affects both children and adults. The advanced symptoms present a picture of a dull slow-moving, obese person.	1. Define the terms myxedema and cretinism. 2. Have students examine pictures in texts depicting myxedema and cretinism. Emphasize key factors. 3. Have students list observations in the pictures and make a textbook comparison. In a group discussion, summarize the symptoms. 4. Present a panel discussion to include medical supervision and family support for these patients. Include special schooling for children, public reaction, acceptance and rejection of these patients and the need for life-long medications.

Enrichment

Select a student to accompany a patient to the isotope laboratory, observe a thyroid scan, and share observations with the class.

Objective 3: The student will be able to describe the symptoms of hyperthyroidism and interpret the nursing intervention.

Hyperthyroid patients overact to all stimuli. A calm, quiet atmosphere is vital for their wellbeing.	1. Role play the symptoms of hyperthyroidism. Direct students to chart the objective symptoms in the SOAPIE format and discuss in class the appropriate nursing intervention. 2. Reinforce the key symptoms which impair the patient's wellbeing.

918

Objective 4: The student will be able to list the three forms of hyperthyroidism treatment and discuss the medical and nursing management of each method.

Developing Core

The prescribed medical approach for the hyperthyroid patient can be chemotherapy control, radiation, or surgery. It is essential that the student practical nurse be knowledgeable of the responsibilities involved in patient care whichever approach is employed.

Student Learning Activities

1. Using reference books, direct students to complete drug cards on common antithyroid drugs. Discuss the drug therapy commonly utilized.

2. Locate in the hospital procedure book, the general rules for observation of patients' receiving radioactive iodine and discuss these guidelines in class.

3. Discuss the pre-operative nursing management.

4. Assist students to prepare a kardex nursing care plan for the management of a post-operative patient.

5. Define: endemic, nodular goiter; and thyroid storm or crisis.

6. Appraise individual students participation in a clinical conference on a selected patient.

7. Comprehensively evaluate actual care given to the patient by the student. Counsel individual students. Stress strengths; assist in improving weaknesses.

Objective 5: The student will be able to demonstrate the pre-operative and post-operative teaching of the patient.

Patients who are going to have a thyroidectomy require teaching to avoid strain on the suture line.

1. Role play teaching the patient to raise his head post-operatively; lifting and moving.

2. Observe students charting and reporting. Appraise effectiveness of both.

Objective 5-continued

3. Direct students to prepare a patient's room for post-operative care.

4. List and describe the appropriate nursing management of post-operative complications. Discuss these in detail.

Objective 6: The student will be able to assist the registered nurse in patient teaching in relation to discharge and home care.

Developing Core	Student Learning Activities
A patient's responsibilities and home environment may have caused the tension that contributed to thyrotoxicosis.	1. Have students develop a nursing care plan to include rest, relaxation, and nutrition for the patient and his/her family. 2. As a class project design a program of relaxing activities for the post-hospital period.

Enrichment

Present a clinical conference on a patient with a complex endocrine disturbance.

Evaluation:

1. Given a list of endocrine diagnostic tests, the student will be able to explain and assist the patient in at least five preparation procedures.

2. The student will be able to contrast the symptoms of myxedema and cretinism.

3. The student will be able to describe the symptoms of hyperthyroidism and interpret the nursing intervention.

4. The student will be able to list three forms of hyperthyroidism and discuss the medical and nursing management of each method.

420

Evaluation-cont.

5. The student will be able to demonstrate pre and post-operative teaching of the patient having a thyroidectomy.

6. On the clinical unit, the student will be able to give safe, effective nursing care to patients with moderately complex endocrine disturbances.

7. The student will be able to assist the registered nurse in patient teaching in relation to discharge and home care.

421

Total Hours: 18
1 Class day
1.5 Experience days

NURSING THE PATIENT WITH PROBLEMS INVOLVING DISFIGUREMENT

Introduction: The skin is one of the most important components of the human body. Its primary function is to serve as a protective envelope for all the underlying tissues. It also serves as an organ of excretion and is largely responsible for the regulation of body temperature. The skin is subject to infections and/or injuries but has an amazing recuperative power.

Specific Objectives:

The student will be able to:

1. Define dermatitis, relate medical terminology, and utilize it correctly in recording and reporting.
2. Describe skin disorders, including etiology, symptoms, therapeutic management, diet and drug therapy, nursing care, and rehabilitation.
3. Demonstrate appropriate nursing measures to assist patients with skin disorders.
4. Demonstrate administering and/or assisting with appropriate nursing measures in the care of a patient with burns.
5. Involve the patient's family in the task of rehabilitation, utilizing the community resources available.

References

Written

Baker, Charles E. Physician's Desk Reference, ed. 29, Oradell New Jersey: Medical Economics Company, 1975.

Brady's Programmed Orientation to Medical Terminology, Bowie, Maryland: Robert J. Brady Company, 1970.

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia; J.B. Lippincott Company, 1975.

Audio-Visual

Field Trip: Harmarville Rehabilitation Center
Mimeographed material

4.28

References-cont.

Written

Chaffee, Ellen E. and Esther M. Greisheimer. Basic Physiology and Anatomy ed. 3, Philadelphia: J.B. Lippincott Company, 1974.

Falconer, Mary W. etal. The Drug The Nurse The Patient, ed. 4, Philadelphia: W.B. Saunders Company.

Grant, Harvey and Robert Murray. Emergency Care Bowie, Maryland: Robert J. Brady Company, 1975. (With workbook)

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease, ed. 3, Philadelphia: J.B. Lippincott Company, 1970.

Shafer, Kathleen Newton, etal Medical Surgical Nursing, ed. 5, Saint Louis: C.V. Mosby Company, 1971.

Smith Dorothy W. and Carol P. Germain. Nursing of Adults, Philadelphia: J.B. Lippincott Company, 1972.

Townsend, Carolyn E. Nutrition and Diet Modifications for the Nurse, Albany, New York: Delmar Publishers, 1972.

Wood, Lucille A. Nursing Skills for Allied Health Services Vol. I, II, and III Philadelphia: W.B. Saunders Company, 1972.

Objective 1: The student will be able to identify symptoms and causes of the most common skin disorders and plan appropriate nursing measures.

Objective 1-continued

Developing Core

The skin is the first line of defense against injury and disease. Not all people have the same resistance to skin disease. Many factors influence the general condition of the individual's skin.

Student Learning Activities

1. Discuss the anatomy and physiology of the primary tissues. Include the skin and mucous membrane lining of the respiratory, gastrointestinal, and genitourinary tract.

2. Compile and give to student a vocabulary list relating to dermatology.

3. Have students review general skin care and treatments proceeding from the simple to the complex. Include daily bathing; special bathing; care of burns.

4. Discuss classifications of dermatitis and have students produce examples:
   a. contact dermatitis (eczema)
   b. secretory disorders (acne)
   c. systemic (lupus)
   d. infections and inflammatory (carbuncles)
   e. ulcers, tumors, and skin lesions
   f. plastic reconstructive surgery

5. Review and introduce drugs:
   a. topical medications
   b. corticosteroids
   c. systemic medications
      1. antibiotics
      2. antihistamines
      3. sedatives and tranquilizers
      4. analgesics and antineoplastics

   Medication cards should include specific action, dosage, side effects, and nursing responsibilities.

6. Have students analyze the psychological effects of dermatitis.

7. Select and have students develop a nursing care plan.

Objective 1-continued

Contact dermatitis, "Eczema". Assign both a hospital and home care plan.

8. Plan an experience in the clinical laboratory for students to care for a patient with skin disease.

9. Student to present with team members, a conference and a nursing care plan on a patient with a skin disturbance.

Objective 2: The student will be able to administer and/or assist in caring for patients with burns.

Developing Core	Student Learning Activities
Burns may be classified according to three major causes: thermal, chemical, and electrical burns.	1. Discuss in great length classifications of burns. Include the depth and percentage of body surface involved using the "rule of nine's".
	2. Develop with students the patho-physiology of fluid shifts. Include shock and post-burn acidosis.
	3. Discuss emergency care according to burn classification. Students will plan with teacher general first aid, and hospitalization and/or burn centers.
	4. Identify burn centers and units in Pittsburgh. Discuss transportation and environmental set-up.
	5. Develop with students two nursing care plans: a. administering nursing care b. assisting wtih nursing care (1.) Classification (a.) degree (b.) body surface (2.) Immediate care (a.) breathing (b.) fluid therapy

325

Objective 2-continued

(c.) renal function
(d.) observations
(e.) prevention of acquired infection
(f.) pain medications
(g.) treatment: exposure, topical ointments, dressings and soaks
(h.) debridement

(3.) Nutrition and methods to increase supply in:
(a.) calories
(b.) proteins
(c.) fluids
(d.) vitamins
(e.) mineral intake

Nutrition must meet the increased metabolic needs of the burned patient. We need to plan for repairing and replacing tissue destroyed or injured by the burn.

Have students select three of the above nutrients, write briefly why increased amounts are needed in the severely burned patient.

4. Long term care (hospital) role of: (meeting physical and emotional needs) physician, physotherapist, social worker, nurse, occupational therapist, clergyman, family.
5. Prevention of complication of contractures
   a. positioning
   b. range of motion exercises
   c. circo-electric bed
   d. Stryker frame
   e. Foster bed

6. Rehabilitation; medical supervision; emphasize referrals: include visiting nurses association, rehabilitation centers, social workers and family.

7. Discuss agency available to assist in financial problems Include:
   a. Private agency
   b. Public agency program
   c. Children's Bureau-Program for Crippled Children

Objective 2-continued

d. Industries, Compensation Insurance
e. Purchasing special equipment, buying and renting

8. Present drug therapy
   a. Topical chemotherapy
   b. Antibiotics
   c. Tetanus Prophylaxis
   d. Pain medications

9. Mention complications:
   a. anemia
   b. gastrointestinal disturbances-ulcer
   c. depression: aspects including problems, fears, delirium and disorientation
   d. deformities
   e. skin changes
   f. malignant degeneration

10. Have students select four complications and plan appropriate nursing measures. Written assignment.

11. In clinical laboratory direct students to utilize the nursing process to administer and/or assist with care of the burned patient.

12. Have students write a one week diet plan for a burn patient. Eat what he likes, as much as he likes, often as he likes, and encourage him/her to eat more.

13. Assign students to develop a comparative study on two types of skin grafts.

<u>Remedial</u>

Review normal structure and physiology of skin, tissues,

Remedial

mucous membrane linings. Relate to a loss of a large area of skin and list harmful effects.

Show Trainex:

1. Sterile Technique and Dressing Change
2. Positioning to Prevent Contractions
3. Range of Joint Motion Exercise

1. Review above trainexes
2. Student-teacher conference to evaluate comprehension
3. Teacher will prepare a list of questions which students will write and discuss in conference

Enrichment

Guest speaker "Fire Control and Prevention"
Guest speaker-Burn Center
"Role of Professional Team"
Plan field experience at Harmarville Rehabilitation Center

Evaluation:

1. The student will explain anatomy and physiology of the primary tissues.
2. The student will define and use correctly the terms used in connection with skin disorders.
3. The student will demonstrate the awareness of nursing responsibilities toward the patient and the diagnostic procedures by assuming responsibility for the preparation of the patients for these procedures specific to skin disorders.
4. The student will recite, write, and institute plans of nursing care relating to the simple skin disorders.
5. The student will write and identify the clusters of symptoms related to the complex disorders of the skin.
6. The student will be aware and thereby observe carefully the patient's reaction, of the medications most frequently used for the simple and more complex disorders of the skin.
7. The student will differentiate the various types and degrees of burns.

4.28

8. The student will discuss the patho-physiology of fluid shifts which occur during the shock and diuretic phases of post-burn.

9. Given four nutrients, the student will write briefly why they are needed in increased amounts by the individual who has been severely burned.

10. In the clinical laboratory, the student will utilize the nursing process to administer care and/or assist a burn victim.

11. The student will identify community resources available to assist patient and his/her family in achieving optimal rehabilitation.

MODULE B
SPECIALIZED NURSING
NURSING OPPORTUNITIES

4.30

Total Hours: 140
Emergency room: 35
Intensive Care: 35
Recovery care: 35
Selective Nursing Experience: 35

HUMAN HEALTH CARE II

Introduction: The student is oriented to areas of specialized nursing including: intensive care, emergency and recovery rooms, and psychiatric nursing. Concepts of home nursing are presented and an extended opportunity to give medications is proveded. Also, principles of leadership are introduced. Two to three days of clinical observations will be given to each student. This assignment will be arranged to meet the individual needs of the student with the availability of health care facilities.

Specific Objectives:

The student will be able to:

1. Demonstrate administering care and /or assisting with an immediate postoperative patient.
2. Assist the professional nurse in intensive care nursing of various patients learning to meet their individual needs.
3. Demonstrate dealing effectively with common emergencies in and out of the health care facility.
4. Show proficiency in giving medications as well as correlating drug therapy with medical treatment of the patient.
5. Adapt nursing skills to the home environment and recognize increasing opportunity for practicing nursing in this area.
6. Define mental health and explain methods of promoting mental health.
7. Discuss principles of psychiatry including etiology, prevention, and treatment of common mental illnesses.
8. Recognize three areas in which the practical nurse would be able to assume a leadership role.

References

Written

Baker, Charles E. Physicians' Desk Reference ed. 29, Medical Economics Company, Oradell, New Jersey, 1975.

Audio-Visual

Clinical Facilities:
Emergency Room
Intensive Care
Recovery Room

431

References-cont.

Written

Brunner, Lillian and Doris Smith Suddarth, Textbook of Medical-Surgical Nursing, ed. 3, Philadelphia: J.B. Lippincott Company, 1975.

Grant, Harvey and Robert Murray, Emergency Care, Bowie, Maryland: Robert J. Brady Company, 1975.

Johnston, Mabyl K. Mental Health and Mental Illness, Philadelphia: J.B. Lippincott Company, 1971.

Kron, Thora Communication in Nursing, ed. 2 Philadelphia: W.B. Saunders Company, 1972.

Noonan, Daren Ann. Emotional Adjustment to Illness, Albany, New York: Delmar Publishers, 1975.

Ross, Carment F. Personal and Vocational Relationships in Practical Nursing, ed. 4, Philadelphia: J.B. Lippincott Company, 1975.

Stevens, Marion K. Personal and Vocational Relationships of the Practical Nurse, ed. 2 Philadelphia: W.B. Saunders, 1975.

Audio-Visual

Community Resources

Field trip
Saint Francis Hospital

Film:
Mental Health

Guest Speaker:
Civil Defense
Red Cross

Trainex:
Cardiopulmonary Resuscitation
Hypothermia
Introduction to Shock, Parts I, II
Rotating Tourniquets

Plan: One day introduction class to 3 specialty nursing units-remaining 3 weeks is experience. One day introduction class to leadership and mental health remaining week is experience.

Objective 1: The student will be able to demonstrate administering care and/or assisting with an immediate post-operative patient.

Student Learning Activities

1. Review general aspects of preoperative care.

Objective 1-continued

Developing Core

The recovery room is a suite, usually located close to the operating room. There is a concentration of especially trained nurses, surgeons, and anesthesiologists, special equipment, medications, replacement fluids, and patients under or recovering from anesthesia.

Student Learning Activities-cont.

2. Develop with students intra-operative care concepts.

3. Discuss purposes of recovery room "Immediate Post-operative Orientation".

4. Identify role of team members including anesthetists, professional, vocational and student nurses, assistants, and escorts.

5. Elicit student responses of the statement "Never leave a recovery room patient alone!"

6. Teacher and students working together, will identify and explain the action taken in essential nursing techniques involved in the recovery from anesthesia. Include these activities:
   a. airway maintenance
   b. stat orders involving oxygen and medications
   c. vomiting observations
   d. cardinal sign observations involving TPR, BP, CVP, and blood gas monitoring
   e. drainage apparatus patency
   f. I.V. therapy check solution and rate of flow
   g. positioning, deep breathing, coughing
   h. dressings-check and reinforce
   i. reporting and recording
   j. post-operative treatment follow through
   k. promoting comfort and safety

7. Discuss in detail postoperative symptoms. Differentiate important and unimportant signs. Convey concept "when in doubt call the physician".

4.33

Objective 1-continued

8. Introduce Trainex: Introduction to Shock. Parts I and II
   Discuss important points and summarize.

9. Discuss transport of patient.

10. Have student select one subject and write a paper on:
    Common post-operative complications
    Shock-observation of post-operative discomforts or complications
    Hemorrhage-identifying symptoms
    Hypoxia-treatment and nursing care
    Present this paper to the class.

11. Plan for each student in clinical laboratory to have experience:
    Select a surgical patient for follow through-written nursing care plan. Include:
    Pre-operative care
    Operating room-observation
    Recovery room-assist in care
    General post-operative care

Objective 2: The student will be able to assist the professional nurse in intensive care nursing of various patients learning to meet their individual needs.

Developing Core	Student Learning Activities
In this area persons are critically ill. Nurse's must have an understanding of acute problems in order to provide optimum care.	1. Discuss purposes of Intensive Care Unit. 2. Present a general orientation to this unit. 3. Review and discuss with students their role in nursing care of the individual patient. Include the following: activities, meeting basic needs: bathing, feeding, positioning, elimination, exercises, and ambulation.

434

Objective 2-continued

Review with students the signs and symptoms of:
a. observations and assessment
respiratory failure
cardiac distress
fluid accumulation
kidney output
Discuss discomforts and action to be taken
b. stress: reporting to professional nurse periodically
c. treatments: assist students to perform irrigations, enemas, intake and output records, and observations of intravenous therapy.
Convey the important concept of simple treatment that become complex because of this type of patient.
Introduce Trainex:
Cardiopulmonary Resuscitation, Initial Phase

Review and Summarize
c. Complications-observations and reporting
Reinforce that when in doubt-REPORT

4. Plan for each student in clinical laboratory to care for one patient so that he/she may learn to meet the nursing needs of the very ill patient. Assignment will be at the discretion of the teacher and registered nurse in charge of the Intensive Care Unit.

5. Discuss the results of intensive care. Review transfer and post mortem procedures.

6. Discuss emotional support of the patient's family.

7. Assign students the opportunity to observe cardiac monitors. Assess their knowledge of purposes and interpretations.

8. Develop with students, a plan of making provision for meeting the patient's physical and spiritual needs in an unconscious state.

435

Objective 3: The student will be able to demonstrate dealing effectively with common emergencies in and out of the health care facility.

Developing Core

Before one can initiate emergency care for the sick or injured one must make a rapid but effective examination of the patient to determine the seriousness of his illness or the extent of his injuries. Not only must the nurse use previously learned basic skills but one must be educated in diagnostic skills in advanced technique of emergency care.

Student Learning Activities

1. Have students list common causes of accidents occurring in the home, community, and the health care facility.
2. List precautions to prevent accidents, identify and discuss safety factors, and available educational programs.
3. Present an orientation to the emergency department including the purposes and personnel.
4. Develop with students emergency care plans on first aid techniques and the nurse's role in assisting the physician.
5. Principles of emergency management will be developed by students with teacher's assistance.
6. Plan for Red Cross Worker to discuss and demonstrate resusitation techniques. Allow students to practice mouth to mouth resusitation.
7. Invite a guest speaker to discuss Civil Defense.

Objective 4: The student will be able to show proficiency in giving medications as well as correlating drug therapy with medical treatment of patient.

The role of the practical nurse is constantly changing with expanding areas of responsibilities. One such area is the administration of medications.

1. Schedule a week for this experience. Select three or four patients receiving various kinds of medications as diuretics, antihypertensives, narcotics, antibiotics, etc.

436

Objective 4-continued

2. The first day have student give total patient care, list and review medications patients are receiving.

3. The following days have students give all medications to these patients; instruct them to keep observation notes of patient's reaction to drug.

4. Accompany this experience with daily individual conferences with students to help them correlate drug therapy with medical management.

5. The student will have an increased opportunity to give medications using the various routes: oral, intramuscular, suppositories, nose, ear and eye drops.

6. The teacher may assign two to three students for advanced experiences; if facilities are suitable.

7. Have students research the new trend of "self-medication kits" which are being used on maternity units including:
   a. medications types
   b. methods of recording
   c. nurses responsibilities
   d. patient teaching

Objective 5: The student will be able to adapt nursing skills to the home environment and recognize increasing opportunity for practicing nursing in this area.

Developing Core

Due to the increased cost of hospitalization and nursing home care more families are considering the possibility of home care.

Student Learning Activities

1. Debate: "Nursing Home Care vs. Home Care".

2. Compose a list of all community resources available to provide nursing care to patients in their home.

Objective 5-continued

3. Assign student to invite practical nurse engaged in this area of nursing to speak to the group.

4. Discuss and demonstrate improvised techniques made to:
   a. give a bath
   b. sterilize equipment
   c. change dressings
   d. common treatments

Objective 6: The student will be able to define mental health and explain methods of promoting mental health.

Developing Core	Student Learning Activities
Before the practical nurse can help the person with a psychological problem he/she must first understand mental health.	1. Define mental health and elicit from class examples of behavior of a mentally healthy person. 2. Show and summarize film: Mental Health. 3. Develop criteria for emotional maturity. Discuss each factor suggested.

Objective 7: The student will be able to discuss principles of psychiatry including etiology, prevention, and treatment of common mental illnesses.

There are many misconceptions about mental illness and a certain stigma still exists about the person who is "crazy". Because of the increasing incidences of mental illness, it is essential that the practical nurse student be familiar with basic concepts of psychiatry.	1. Have students express their own ideas relating to the following questions: a. What is psychiatry? b. What do you think causes a person to have a "Nervous breakdown"? c. Define: "bad nerves". d. Why are people reluctant to admit to mental illness, even when giving a physician their medical history?

Objective 7-continued

2. Review defense mechanisms or coping devices with class. Use examples of each.

3. Clearly differentiate between neuroses and psychoses.

4. Discuss mental illness in relation to prevention, etiology, predisposing factors, symptoms, medical management, and appropriate nursing care.

5. Define: psychoneurosis, schizophrenia, manic depressive, toxic psychoses, involutional melancholia, and paranoia.

6. Assign students two days observation at Saint Francis Hospital. Discuss observations.

7. Present a conference with the group to summarize their experience including:
   Role of Practical Nurse in Psychiatry
   Medical treatment of patients including therapies as:
   recreational and occupational

   Community resources available for continued medical supervision of patient.

Objective 8: The student will be able to recognize three areas in which the practical nurse would be able to assume a leadership role.

Developing Core

Trends in practical nursing show an increased demand for the nurse to be aware of the principles of leadership and to act upon these concepts.

Student Learning Activities

1. Assign students to assist the team leader in establishing priorities of nursing action related to several patients with special regard to their individual needs.

2. Direct students to obtain a history and develop a nursing assessment for a new admission.

439

Objective 8-continued

3. Evaluate individual students management of progressively complex patient assignments. Communications, rapport established, and choice of information to record, should be included in this evaluation.

4. Allow students to assume the role of team leader in a selected assignment and transcribe physician's therapeutic prescriptions, complete the kardex, and develop a nursing care plan.

5. Reinforce specific legal aspects in the team leader role of the practical nurse. Include written and verbal orders, confidentiality of patient's record, accident and incident reports, proper identification, delegation of responsibilities, and public relations.

Remedial

Teacher must identify student's individual needs and plan review to meet his or her particular needs.
Review pre and post operative care.

Teacher must identify student's individual needs and plan review accordingly.

Enrichment

The student will report on follow through with other students.

Research new material on "Meeting the family's emotional and spiritual needs". Give written assignment: "Identify needs of your patient and how these needs were met."

Plan for student to spend one to two days with agency and give home care. Report experience to the group.

Evaluation:

1. The student will be able to define the purposes of the recovery room and discuss the principles of recovery room nursing.

2. From a list of significant observations, the student will be able to explain the nursing action to be taken in each situation.

3. The student will be able to discuss the purpose of the intensive care unit and the concepts involved in this type of nursing management.

4. The student will be able to discuss principles of emergency management.

5. The student will state three causes of accidents and discuss methods of prevention.

6. The student will be able to demonstrate proficiency in giving medications and relate specific drug therapy to the medical management of the patient.

7. Given a written examination on mental health and illness, the student will be able to demonstrate adequate knowledge by satisfactorily passing it.

8. The student will be able to recognize three areas in which the practical nurse would be able to assume a leadership role.

14.h

Total hours: 70
2 class days
8 experience days

NURSING OPPORTUNITIES

Introduction: This unit introduces the student practical nurse to the realization that soon he/she will graduate. Ethical and legal responsibilities are stressed as well as the ever expanding role of the licensed practical nurse. In addition trends of health care, nursing organizations, and career opportunities are presented.

Specific Objectives:

The student will be able to:

1. Discuss the trends of nursing in relationship to total health care.
2. Interpret ethical and legal responsibilities of the licensed practical nurse.
3. Determine the role of the practical nurse on the total health team.
4. Identify nursing organizations and describe the chief functions of each.
5. Evaluate job sources for employment opportunities in the total health care delivery system.
6. Demonstrate to correctly appling for or resign from a job.
7. Recognize the importance of personal and professional growth.

References

Written

French, Ruth M. The Dynamics of Health Care, New York: McGraw-Hill Inc., 1974.

Kron, Thora. Communciation in Nursing, ed. 2, Philadelphia: W.B. Saunders Company, 1972.

Ross, Carmen T. Personal and Vocational Relationships in Practical Nursing, ed. 4 Philadelphia: J.B. Lippincott Company, 1975.

Audio-Visual

Mimeograph Material
Statement of Functions of the LPN.
Professional Journals
Position Paper of the National Federation of Licensed Practical Nurses
Practical Nursing in the Nineteen Seventies
Job Application Forms
Interview Tapes

Plan: 4 Class days,
1. NLN test, graduation rehearsal
2. Job applications, Nursing organizations
3. Job opportunities, interview and resume etc.
4. Final evaluation conference

442

Objective 1: The student will be able to discuss the trends of nursing in relationship to total health care.

Developing Core

The issues, problems, and opportunities in health care demand positive action if high quality care is to be achieved while at the same time costs are kept at reasonable levels and services made available to the total population.

Student Learning Activities

1. Present a brief historical review of health care stressing the integral role of nursing.
2. Obtain students personal experiences and feelings on what constitutes good health care. Emphasize promotion of health.
3. From a class developed list, direct students to select a problem in health care and decide how it can be solved.
4. Form a panel discussion on the pros and cons of a national health insurance plan.
5. Discuss nursing in the 70's. Conclude apparent direction. Appraise this direction.
6. Encourage students to read new trend articles in professional periodicals and participate in a related class discussion.
7. Discuss the statement "As health needs change so must health care."

Objective 2: The student will be able to interpret ethical and legal responsibilities of the licensed practical nurse.

The National Federation of Licensed Practical Nurses adoped a code of conduct by which and through which its members should govern their personal lives and nursing careers. Each graduating student inherits the responsibility to adhere to these standards.

1. Differentiate between ethical and legal responsibilities. Obtain from students several examples of each.
2. Role play "situation ethics."
   (a) classmate charts a procedure that wasn't done
   (b) a staff nurse is observed pocketing a discharged patient's leftover Darvon.

Objective 2-continued

Developing Core	Student Learning Activities
	(c) a co-worker wipes spilled water from the floor and without washing his/her hands begins to diaper a baby.
	3. Discuss the legal role of the State Board of Nurse Examiners.
	4. Define: mandatory, permissive, waiver.
	5. Explain the procedure by which a graduating student becomes licensed.
	6. Discuss renewal and interstate licensure.
	7. Present an overview of the Nurse Practice Act. Allow students to participate in a class discussion of causes for revoking or suspending a license.
	8. By using several examples, differentiate between negligence and malpractice.
	9. Reinforce legal aspects including patient's consent, assault and battery, child abuse, invasion of privacy, defamation of character, abortions, euthanasia, drug abuse, organ transplants, wills, patient's chart, contracts by having students participate in a panel discussion.
	10. Illustrate by examples the importance of liability insurance. Encourage students to compile information on medical litiation cases publicized in newspapers and magazines.

444

Objective 3: The student will be able to determine the role of the practical nurse on the total health team.

Developing Core

Today's practical nurse has become one of the most integral and valuable members of the total health care team. This expanding role provides flexibility in the functions of the licensed practical nurse who has obtained further knowledge and skills through education and experience.

Student Learning Activities

1. Hand out copies of the NFLPN's Statement of Functions of the Licensed Practical Nurse and present an introduction to its purpose.

2. Allow students adequate time to read and study it. Discuss and summarize each area: role, education, legal status, personal qualifications, functions in total health care system, continuing education and utilization.

3. Assign students to write a short paper entitled "Who is the Licensed Practical Nurse?" or "The Role of the LPN on the Health Team."

4. Thoroughly discuss the role of the licensed practical nurse on the total health team.

Objective 4: The student will be able to identify nursing organizations and describe the chief functions of each.

The graduating practical nurse should be aware of his/her responsibility in joining professional organizations that will not only assist him/her in becoming a better practitioner but can advance the interests of the vocation.

1. Present an introduction to nursing organizations and stress active participation.

2. Obtain from students examples of how the progrss of any organization depends on the support and cooperation of individual members. Summarize membership responsibilities.

3. Invite a guest speaker from the school's Alumnae Association to present an overview of this organization.

4. Discuss the origin, purposes, functions, and publications of each organization including: NLN, NAPNES, NFLPN, and ANA.

445

Objective 4-contined

Developing Core	Student Learning Activities
	5. Distribute Journal examples to students for their perusal.
	6. Review parliamentary procedure, prepare an agenda and simulate a professional meeting.
	7. Hand out copies of the NFLPN's "Practical Nursing in the Nineteen Seventies-A Position Paper." Thoroughly discuss the twelve recommendations. Encourage students to attend professional organization meetings.
	Objective 5: The student will be able to evaluate job sources for employment opportunities in the total health care delivery system.
The licensed practical nurse has become a valuable health team member and his/her opportunities for employment vary greatly. The decision as to what kind of job to look for is an important one, and should be given careful consideration.	1. Discuss the avenues opened in a job-hunting campaign.
	2. Examine examples of job sources-what sources are most promising?
	3. Identify the advantages and the disadvantages of a job in: a. a hospital b. a nursing home c. a doctor's office d. private duty e. the visiting nurse service f. the Peace Corps, VISTA g. industrial organizations h. psychiatric nursing i. military service
	4. List and discuss fringe benefits include salary, vacations, sickleave, leaves of absence, holidays, transportation, reputation of employer, insurance benefits, working conditions, inservice education and promotional opportunities.
	5. Direct students to write a short paragraph on "Finding the Right Job for Me." (Should reflect individual priorities)

446

Objective 6: The student will be able to demonstrate correctly apply for or resign from a job.

Developing Core

A résumé is a record of qualifications, training, and experience. No matter which avenue of job hunting is chosen it is necessary to present this record. The résumé must be accompanied by a letter of application.

The purpose of the job interview is to secure the job. Thorough preparation for this interview is essential.

Student Learning Activities

1. Discuss the process of finding a position.
2. Define résumé. Distribute several examples for students to examine.
3. List and discuss information included in a résumé.
4. Direct students to practice writing personal resumes in a logical, concise, and interesting manner.
5. Discuss the pertinent facts included in a letter of application.
6. Have student practice writing a letter of application.
7. Allow students to review application forms from various institutions.
8. Discuss good grooming, personal appearance, and the code of behavior necessary for a successful job interview. Name some of the ways in which good manners could be shown during an interview.
9. Have students make a list of the items in personal wardrobe that might be worn to an interview.
10. List the credentials to be taken on a job interview.
11. Listen to tapes of sample interviews or role-play job interview situations.
12. Direct students to construct a list of questions pertinent to the job which at the close of the interview might be asked.

444

Objective 6-continued

Developing Core	Student Learning Activities
All aspects of a job should be carefully considered before the licensed practical nurse plans to resign his/her present position; however, there are several vaild reasons for terminating a position.	13. Have students practice writing letters of thanks and regret. 14. List reasons for resigning from a job. 15. Discuss the essential facts included in a letter of resignation. 16. Have students practice writing a letter of resignation. 17. Discuss the resources and process of a terminal interview.
	Objective 7: The student will be able to recognize the importance of personal and professional growth.
Chances for promotion in the nursing world vary greatly and the opportunities are virtually unlimited. In addition to moving ahead in a career, the personality as a whole should be further developed.	1. Make a list of the important qualifications for getting ahead. 2. Discuss ways of preparing for promotion. 3. Review lists of sure ways to earn promotion. Personally evaluate strengths and weaknesses in each area. 4. Discuss avenues of continuing formal education. Review the health career ladders. Encourage students to research areas which are of most individual interest. 5. Assist students to identify personal self-improvement needs and have them develop a definite plan for an individual self-improvement program. 6. Describe areas in which personal growth can be achieved.

498

Enrichment

Suggest reading of Michael Creigton's Five Patients.

Encourage students to read professional magazine articles on the expanding role of the licensed practical nurse.

Evaluation:

1. The student will be able to discuss the trends of nursing in relationship to total health care.
2. Given a list of ethical and legal responsibilities, the student will be able to differentiate between them.
3. The student will be able to explain the role of the State Board of Nurse Examiners, the procedure for becoming licensed, and the Nurse Practice Act.
4. The student will be able to summarize the "Statement of Functions of the Licensed Practical Nurse" and relate this information to the role of the practical nurse on the total health team.
5. Given the name of five pertinent nursing organizations, the student will be able to describe the chief functions and publications of each.
6. Given several employment opportunities, the student will be able to evaluate fully each one.
7. The student will be able to compile a résumé and write a letter of application and resignation.
8. The student will be able to state eight essential factors in a job interview.
9. The student will be able to explain fully why professional and personal growth are essential and how this growth can be achieved.

449

BIBLIOGRAPHY

4150

PITTSBURGH PUBLIC SCHOOLS
DEPARTMENT OF SECONDARY SCHOOLS
DIVISION OF OCCUPATIONAL, VOCATIONAL, AND TECHNICAL EDUCATION

BIBLIOGRAPHY

Fundamentals of Nursing

Hoffman, Claire P. and Gladys B. Lipkin. Practical Nursing Workbook. Philadelphia: J. B. Lippincott Company, 1969.

Hoffman, Claire P. et al. Simplified Nursing. 8th ed. Philadelphia: J. B. Lippincott Company, 1968.

Kozier, Barbara Blackwood and Beverly Witter DuGas. Fundamentals of Patient Care. Philadelphia: W. B. Saunders Company, 1967.

Stevens, Carolyn B. Special Needs of Long-Term Patients. Philadelphia: J. B. Lippincott Company, 1974.

Thompson, Ella M. and Caroline Bunker Rosdahl. Textbook of Basic Nursing. 2nd ed. Philadelphia: J. B. Lippincott Company, 1973.

Wood, Lucille A. Nursing Skills for Allied Health Services. Vol. I, II and III. Philadelphia: W. B. Saunders Company, 1972.

Medical - Surgical

Brunner, Lillian Sholtis and Doris Smith Suddarth. Textbook of Medical - Surgical Nursing. 3rd ed. Philadelphia: J. B. Lippincott Company, 1975.

Grant, Harvey and Robert Murray. Emergency Care. Bowie, Maryland: Robert J. Brady Company, 1975. (with workbook)

Shafer, Kathleen Newton et al. Medical Surgical Nursing. 5th ed. Saint Louis: C. V. Mosby Company, 1971.

Smith, Dorothy W. and Carol P. Germain. Nursing of Adults. Philadelphia: J. B. Lippincott Company, 1972.

151

Foods & Nutrition

Anderson, Linnea; Dibble, Marjorie V.; Mitchell, Helen S.; Rynbergen, Henderika J. Nutrition in Nursing. Philadelphia: J. B. Lippincott Company, 1972.

Bratton, Esther Crew. Home Management is. . . Boston: Ginn & Company, 1971.

Deutsch, Ronald. Nuts Among the Berries. New York: Ballantine Books (paperback): 101 Fifth Avenue, New York, New York 10003.

Guthrie, Helen Andrews. Introductory Nutrition. 3rd ed. Saint Louis: C. V. Mosby Company, 1975.

Robinson, Corinne H. Basic Nutrition and Diet Therapy. 3rd ed. New York: Macmillan Publishing Company, 1975.

Townsend, Carolyn E. Nutrition and Diet Modifications for the Nurse. Albany, New York: Delmar Publications, 1972.

Williams, Sue Rodwell. Nutrition and Diet Therapy. 2nd ed. Saint Louis: C. V. Mosby Company, 1973.

Williams, Sue Rodwell. Mowry's Basic Nutrition and Diet Therapy. 5th ed. Saint Louis: C. V. Mosby Company, 1975.

Wilson, Eva D.; Fisher, Katherine H.; Fuqua, Mary E. Principles of Nutrition. 3rd ed. New York: John Wiley and Sons, Inc., 1975.

Yearbook of Agriculture

Anatomy and Physiology

Anatomy and Physiology. The Cardiovascular System. 2nd ed. Bowie, Maryland: Robert J. Brady Company, 1970.

Anatomy and Physiology. The Respiratory System. 2nd ed. Bowie, Maryland: Robert J. Brady Company, 1972.

Burke, Shirley R. Human Biology in Health and Disease. New York: John Wiley and Sons, Inc., 1975.

452

Anatomy and Physiology (cont'd.)

Chaffee, Ellen E. and Ester M. Greisheimer. Basic Physiology and Anatomy. 3rd ed. Philadelphia: J. B. Lippincott Company, 1974.

Elson, Lawrence M. It's Your Body. New York: McGraw-Hill, Inc., 1975.

Ferris, Elvira B. and Ester G. Skelley. Body Structure and Functions. Albany, New York: Delmar Publications, 1973.

Hammond Human Anatomy Atlas. Maplewood, New Jersey: C. S. Hammond and Company, 1960.

Kristy, Jean and Lucy V. McDaniel. Brain and Nerves of the Human Body. Beverly Hills, California: Glencoe Press, 1965. (with plate booklet)

McDaniel, Lucy V. et al. Bones, Joints and Muscles of the Human Body. Beverly Hills, California: Glencoe Press, 1965. (with plate booklet)

Memmler, Ruth Lundeen and Ruth Byers Roda. The Human Body in Health and Disease. 3rd ed. Philadelphia: J. B. Lippincott Company, 1970.

Miller, Marjorie A. and Lutie C. Leavell. Kimber - Gray - Stackpole's Anatomy and Physiology. 16th ed. New York: Macmillan Publishing Company, Inc., 1972. (with workbook)

Putnam, Sandra L. et al. Major Systems of the Human Body. Beverly Hills, California: Glencoe Press, 1970. (with summary booklet)

Thomas, Virginia E. Life Sciences for Health Technologies. Los Angeles: Technicourse, Inc., 1970.

Personal and Vocational Relationships

French, Ruth M. The Dynamics of Health Care. New York: McGraw-Hill, Inc., 1974.

Johnston, Mabyl K. Mental Health and Mental Illness. Philadelphia: J. B. Lippincott Company, 1971.

Kron, Thora. Communication in Nursing. 2nd ed. Philadelphia: W. B. Saunders Company, 1972.

4-5-3

Personal and Vocational Relationships (cont'd.)

Milliken, Mary Elizabeth. Understanding Human Behavior. Albany, New York: Delmar Publications, 1974.

Noonan, Karen Ann. Emotional Adjustment to Illness. Albany, New York: Delmar Publications, 1975.

Smith, Elizabeth and Barbara Huber. Concepts in Leadership for the Licensed Practical Nurse. Saint Louis: C. V. Mosby Company, 1973.

Medical Terminology

Brady's Programmed Orientation to Medical Terminology. Bowie, Maryland: Robert J. Brady Company, 1970.

Smith, Genevieve Love and Phyllis E. Davis. Quick Medical Terminology. New York: John Wiley and Sons, Inc., 1972. (with audio cassette)

Math - Drugs

Falconer, Mary W. et al. The Drug - The Nurse - The Patient. 4th ed. Philadelphia: W. B. Saunders Company.

Fitch, Grace E. and Margaret A. Larson. Arithmetic Review and Drug Therapy for Practical/Vocational Nurses. 3rd ed. New York: Macmillan Company.

Franks, Joseph G. et al. Mathematical Concepts in Pharmacology. Anaheim, California: Anaheim Publishing Company, 1973.

Shugar, Gershon J. et al. Allied Health Mathematics. Beverly Hills, California: Glencoe Press, 1975.

Geriatrics

Caldwell, Ester and Barbara R. Hegner. Geriatrics. Albany, New York: Delmar Publications, 1975.

Long, Janet M. Caring for and Caring About Elderly People. Philadelphia: J. B. Lippincott Company, 1972.

h_sh

Geriatrics (cont'd.)

Stevens, Marion Keith. Geriatric Nursing for Practical Nurses. Philadelphia: W. B. Saunders Company, 1965.

Maternal - Child Health

Albrecht, Margaret. Parents and Teen-agers: Getting Through to Each Other. New York: Parent's Magazine Press, 1972.

Anderson, Barbara G. Obstetrics for the Nurse. Albany, New York: Delmar Publications, Inc., 1966.

Bethea, Doris C. Introductory Maternity Nursing. 2nd ed. Philadelphia: J. B. Lippincott Company, 1973.

Blake, Florence G. Nursing Care of Children. 8th ed. Philadelphia: J. B. Lippincott Company, 1970.

Bleier, Inge J. Maternity Nursing. 3rd ed. Philadelphia: W. B. Saunders Company, 1971.

Broadribb, Violet. Foundations of Pediatric Nursing. 2nd ed. Philadelphia: J. B. Lippincott Company, 1973.

Broadribb, Violet and Charlotte Corliss. Maternal - Child Nursing. Philadelphia: J. B. Lippincott Company, 1973.

Erikson, Erik H. Childhood and Society. New York: W. W. Norton and Company, Inc., 1950.

Fitzpatrick, E. et al. Maternity Nursing. 12th ed. Philadelphia: J. B. Lippincott Company, 1971.

Gilbert, Sara D. Three Years to Grow. New York: Parent's Magazine Press, 1972.

Gilbert, Sara D. What's a Father For? New York: Parent's Magazine Press, 1975.

Ginott, Haim. Between Parent and Child. New York: Macmillan Company, 1970.

Ginott, Haim. Between Parent and Teenager. New York: Macmillan Company, 1969.

Hoover, Mary B. The Responsive Parent. New York: Parent's Magazine Press, 1972.

455

Maternal - Child Health (cont'd.)

Hymovich, Debra P. Nursing of Children. Philadelphia: W. B. Saunders Company, 1969.

Ingalls, A. Joy and M. Constance Salerno. Maternal and Child Health Nursing. 3rd ed. Saint Louis: C. V. Mosby Company, 1975. (with study guide)

Minton, Lynn. Growing Into Adolescence. New York: Parent's Magazine Press, 1972.

Mogal, Doris P. Character in the Making. New York: Parent's Magazine Press, 1972.

Neisser, Edith G. Primer for Parents of Preschoolers. New York: Parent's Magazine Press, 1972.

Persis, Mary Hamilton. Basic Pediatric Nursing. 2nd ed. Saint Louis: C. V. Mosby Company, 1974.

Stone, L. Joseph and Joseph Church. Childhood and Adolescence. New York: Random House, 1957.

Stuart, Harold and Dane G. Prugh. The Healthy Child. Cambridge, Massachusetts: Harvard University Press, 1960.

Wiedenbach, Ernestine. Family - Centered Maternity Nursing. 2nd ed. New York: G. P. Putnam's & Sons, 1967.

456

PITTSBURGH PUBLIC SCHOOLS
PRACTICAL NURSING PROGRAM

AUDIO-VISUAL AIDS

TRAINEX SERIES:

Trainex No. 1 — PATIENT CARE SERIES - PACKAGE I

Bed Bath
Cleansing Enema
Blood Pressure
Temperature, Pulse & Respiration
Occupied Bed Making

Trainex No. 2 — PATIENT CARE SERIES - PACKAGE II

Urinary Care
Medical Asepsis
Feeding the Patient
Range of Joint Motion Exercise
Bowel & Bladder Training
Admission & Discharge
Lifting & Moving Patient

Trainex No. 3 (2) — PATIENT CARE SERIES - PACKAGE BN-4

Oxygen Administration
Isolation Technique
Care of the Dying Patient
Pre & Post Operative Care

Trainex No. 4 (3) — CARDIAC SERIES

The Normal Heart and the EKG
Congestive Heart Failure
Cardiac Emergency Care
Introduction to Arrhythmias
Myocardial Infarction Nursing Care

Trainex No. 5 (3) — GASTRO-INTESTINAL SERIES

Colostomy Irrigation
Nasogastric Incubation & Gavage Feeding
Gastric & Gastro-intestinal Decompression
Thoracentesis & Abdominal Paracentesis
Introduction to Shock, Parts I & II

Trainex No. 6 — MUSCULO-SKELETAL SERIES

Care of the Patient in Cervical Traction
Positioning to Prevent Contractions
Care of a Patient in a Cast
Crutch Walking
Care of a Patient in Traction

Trainex No. 7 — PATIENT CARE SERIES

Emergency Eye Care
Rotating Tourniquets
Subcutaneous & Intramuscular Injection (MISSING FILM)
Operating Room Skin Preparation
Sterile Technique & Dressing Change

Trainex No. 8 — DIABETIC SERIES

Diabetes Mellitus Pathophysiology
Care of the Patient with Diabetes Mellitus
Teaching the Patient with Diabetes
What is Diabetes?
Diabetic Meal Planning

4.57

TRAINEX SERIES: (cont'd.)

Trainex No. 9 (2) RESPIRATORY SERIES

Postural Drainage, Clapping & Vibration
Tracheostomy Care
I.P.P.B. Assisted I
I.P.P.B. Assisted II
What is Emphysema?

Trainex No. 10 PATIENT CARE SERIES

Orientation
Personal Care in Long Term Illness
Observation & Charting
Nursing Care During Intravenous Therapy
Transfer Activities and Ambulation

Trainex No. 11 ADVANCED RESPIRATORY SERIES

Cardiopulmonary Resuscitation, Initial Phase
Tracheostomy Care
Care of the Patient with Emphysema
What is Emphysema?
Care of the Patient with Water Sealed Drainage

Trainex No. 12 NEUROLOGY SERIES

Surgical Treatment of Herniated Lumbar Disk
Care of the Patient with a Head Injury
Introduction to Seizure Disorders, Parts I & II
Nursing Care of Seizure Disorders, Parts I & II

Trainex No. 13 MEDICATION SERIES

The Barbituate Drugs
Antihistamine Drugs
Drug Dependency - Alcohol
Drug Dependency - Stimulants, Depressants & Psychedelics
Drug Dependency - Narcotics, Analgesics

Trainex No. 14 PATIENT CARE SERIES

Care of the Dying Patient
Pre and Post-operative Care
Oxygen Administration
Isolation Technique
Spiritual Needs of the Patient

Trainex No. 15 HOUSEKEEPING SERIES

Cleaning the Occupied Room
Cleaning the Check Out Room
Cleaning the Isolation Room
Housekeeping Orientation
Custodial Duties

Trainex No. 16 PATIENT CARE SERIES

Bowel and Bladder Training
Hypotherma
Care of the Patient with Leukemia
Intake and Output
Urinary Catheterization, Male and Female

Trainex No. 17 (3) CARCINOMA SERIES

Breast Cancer and Mastectomy

458

TRAINEX SERIES: (cont'd.)

Trainex No. 17 (3) CARCINOMA SERIES (cont'd.)

Complications of Advanced Cancer
Care of the Patient with Terminal Cancer
Cancer of the Prostate
Cancer of the Uterus

Trainex No. 18 (3) OBSTETRIC SERIES

Post Partum Care
Infant Care - Breast Feeding

Trainex No. 19 PATIENT CARE SERIES

Care of the Patient with Leukemia
Care of the Patient with Emphysema
Sterile Technique and Dressing Change
Postural Drainage, Clapping, and Vibration
Hypotherma

Trainex No. 20 PATIENT CARE SERIES

Care of the Patient with Leukemia
Emergency Eye Care
Rotating Tourniquets
Introduction to Seizure Disorders, Parts I & II
Nursing Care of Seizure Disorders, Parts I & II

Trainex No. 21 PATIENT CARE SERIES

Sterile Technique & Dressing Change
Emergency Eye Care
Rotating Tourniquets
Lumbar Puncture
Nursing Care During Intravenous Therapy

Trainex No. 22 PATIENT CARE SERIES

Nursing Care in Seizure Disorders, Parts I & II
Introduction to Seizure Disorders, Parts I & II
Care of the Patient with a Head Injury
Surgical Treatment of a Herniated Lumbar Disk
The Use of Protective Restraints

Trainex No. 23 PATIENT CARE SERIES

Care of the Patient in a Cast
Rotating Tourniquets
Care of a Patient with Leukemia (MISSING FILM)
Emergency Eye Care
Care of a Patient in Cervical Traction

TRANSPARENCIES: Obstetrics

FILMS:

Normal Delivery
Generation to Generation
How to Dress a Wound
Medical Asepsis
Mrs. Reynolds Needs a Nurse

Trainex No. 24 PEDIATRICS SERIES

Admission and Orientation of the Child
Stephen Goes to the Hospital
Cathy Has an Operation
Parents and Their Ill Child

459

TRAINEX SERIES: (cont'd.)

Trainex No. 25 OBSTETRICS SERIES

Infant Care, Introduction Skin Care, Bathing & Preparation
Health Care of the Normal Infant
Normal Patterns of Development

Trainex No. 26 DRUGS & SOLUTIONS SERIES

Fractions and Decimals
Metric System
Apothecary Measurement
Household Measurement

Trainex No. 27 CARDIOVASCULAR NURSING

Thrombus, Etiology & Prevention
Thrombus, Intervention & Treatment

Trainex No. 28 STRUCTURE AND FUNCTION (GROSS)

The Skeletal & Muscular Systems
The Nervous System & the Cardiovascular System
Respiratory System, Digestive System & Special Senses

Trainex No. 29 COMMUNICATIONS

The Sending Process, Program I
The Sending Process, Program II
The Receiving Process
Effective Listening

Trainex No. 30 ACID BASE BALANCE SERIES

The Body's Regulation of pH

Trainex No. 30 ACID BASE BALANCE SERIES (cont'd.)

Compensation of Imbalances
Respiratory Acidosis & Alkalosis
Metabolic Acidosis & Alkalosis

Trainex No. 31 ELECTROLYTES SERIES

Electrolyte Balance
Functions of Electrolytes

Trainex No. 32 NEUROLOGY

Rehabilitation of a Patient with a Stroke

Trainex No. 33 GENITO-URINARY SYSTEM

Acute Renal Failure

Trainex No. 34 BLOOD PRESSURE

Blood Pressure - Physiology of a Vital Sign Program I
Blood Pressure - Physiology of a Vital Sign Program II (Cardiovascular Nursing)

Trainex No. 35 PROFESSIONAL VOCATIONAL RELATIONSHIPS

Legal Implications in Nursing

Trainex No. 36 PATIENT WITH WATER SEALED DRAINAGE

Emphysema
Cardiopulmonary Resuscitation
Anaphylactic Shock
Ultrasonic Nebulizer

460

TRAINEX SERIES: (cont'd.)

Trainex No. 37 NURSE PATIENT INTERACTION

Trainex No. 38 INFECTION CONTROL SERIES

461

CLINICAL EXPERIENCE

The supervised clinical experience of the Practical Nursing Program, totaling 888 hours in health care facilities is designed to provide the individual student with the opportunity to put into practice those skills acquired during the course.

Practical Nursing, by its very nature, cannot be learned only in a classroom. Certainly, the knowledge and skills can be acquired in the classroom setting, but an immense strengthening of these learned concepts will be realized only through actual observation and practice within a clinical facility. The real-work setting provides the students with a clearer understanding of the total health team and a more realistic evaluation of the levels of skill required.

Another benefit of selected clinical learning experiences is the development of more effective work habits, and the flexibility to be gained by organizing health care assignments subject to the type of interruptions not experienced in the previous classroom laboratory sessions.

Actual utilization of communication skills related to the health field as well as personal and social skills essential for the successful practical nurse will be greatly enhanced by the interpersonal relationships between health team members and patients.

APPENDIX

463

PITTSBURGH PUBLIC SCHOOLS
PRACTICAL NURSING PROGRAM

OPPORTUNITY FOR GRANTING ADVANCED STANDING

The nursing profession is viewed as a whole, developed along an educational continuum with a multi-entry system.

The individual has a right to an educational opportunity which will enhance personal growth and develop full potential, while progressing according to his/her learning abilities and previous educational foundations.

The faculty of the Pittsburgh Public Schools Practical Nursing Program believes that this theoretical construct for the program curriculum allows individuals from various health programs such as nurses' aids, practical nurses licensed by waiver, corpsmen who wish to qualify for advanced standing at this first or second entry level may do so by applying and meeting the standards of the level best suited for the individual. The graduate from the Health Assistant II program articulates into Human Health Care I.

Conversely, students who are enrolled in this program could voluntarily or by recommendation of the faculty, withdraw from the program at the end of the first or second level and would be qualified to find employment in specific health agencies in a role other than that of a practical nurse.

STANDARDS FOR HEALTH ASSISTANT II APPLICANT

Graduates of the Health Assistant II program who wish to apply for articulation in the Practical Nursing Program must meet the following requirements:

1. Must have a high school diploma.
2. Be 18 years of age before or upon completion of the Practical Nursing Program.
3. Evidence of good mental and physical health as determined by a complete physical examination.
4. Satisfactory competency rating in nursing skills; attainment of an 80 percent proficiency in theory.
5. Demonstrate aptitude and interest in practical nursing as evidence by conscientious nursing care, good interpersonal relationships with hospital personnel; seeks initiative in new learning experiences.
6. Present and punctual for a minimum of 480 hours.
7. ~~United States citizenship or have first papers.~~
8. No personal responsibilities which place limitations on the student's performance.

ADVANCED STANDING REQUIREMENTS FOR FIRST LEVEL ENTRY

The faculty of the Pittsburgh Public Schools Practical Nursing Program proposes that the following criteria be adopted to grant advanced standing to an applicant who wishes to enroll in the program beginning with Human Health Care I.

469

The applicant must meet all regular requirements that apply to any applicant who wished to enroll in this program.

1. Male or female, single or married
2. Resident of Pennsylvania
3. Minimum age 17 years
4. High school diploma or its equivalent as evaluated by the Department of Education
5. Evidence of good mental and physical health as determined by a complete physical examination.
6. Satisfactory rating on pre-entrance aptitude tests.
7. Personal qualifications evaluated through written references and a personal interview by faculty. These include a genuine interest in people and aptitude for nursing.
8. ~~United States citizenship or have first papers~~.
9. No personal responsibilities which place limitations on the student's performance.

The applicant must meet these additional requirements:

1. Show evidence of having worked with adult patients in giving nursing care for a minimum of 480 hours prior to date of application. The 480 hours of experience must have been obtained within two years prior to application.
2. Have satisfactory personal references from employers, supervisors and/or school officials which demonstrate to the faculty satisfactory achievement of Fundamentals of Health Care objectives. The types of experience shall be similar to those offered in Fundamentals of Health Care.
3. Receive a satisfactory score in a written comprehensive examination and demonstration of selected nursing skills taught in Fundamentals of Health Care.
4. The applicant for advanced standing shall be given a copy of the course outline in Fundamentals of Health Care prior to the examination.
5. The applicant shall be granted advanced standing only if the faculty believes that such a decision is educationally sound for the applicant concerned.

465

SECOND LEVEL ENTRY APPLICANTS

1. The applicant must meet all of the regular requirements which apply to an applicant who wishes to enroll in the program.
2. This applicant must meet these additional requirements:

   (1) Show evidence of having worked with patients of all ages in giving nursing care of a minimum of 1110 hours, prior to the date of application. Also, this experience must have been obtained within two years prior to the date of application.
   (2) Have satisfactory personal references from employers, supervisors, and/or school officials.
   (3) Demonstrate to the faculty satisfactory achievement of the Fundamentals of Health Care, Human Health Care I. The type of experience shall be similar to those offered in the above areas. Receive a satisfactory score on a written comprehensive examination and a demonstration of selected skills that are taught in

these areas. Questions shall be taken from the final examinations of the previous levels.

(4) Each applicant will be given the course outline with recommended reading prior to taking this examination.

(5) Receive a satisfactory score on the NLN three units of content standarized achievement test.

(6) The applicant shall be granted advanced standing only if the faculty believes that such a decision is educationally sound for the applicant concerned.

(7) In order to qualify for graduation from this program each student must complete Human Care II.

CE009543

SAMPLE

MASTER ROTATION PLAN FOR PRACTICAL NURSING PROGRAM STUDENTS

Hospital _____
Pittsburgh Public Schools Practical Nursing Program

Number of Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
																																																	V	V	V	V
Month of																																																	a	a	a	a
Week of																																																	c	c	c	c
1.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =				
2.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	a	a	a	a
3.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	t	t	t	t
4.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	i	i	i	i
5.	*	*	*	*	*	*	*	*	*	*	*	*	*	*	* =	* =	/	/	/	/	/	/	/	/	/	/	/	/	.	.	.	.	.	.	"	"	"	"	"	"	"	"	+	+	+	+	+ =	+ =	o	o	o	o
6.																																																	n	n	n	n

CODE:

7. Fundamentals *
8. Level II Module A /
9. Level II Module B .
10. Level III Module A "
11. Level III Module B +
12. Evaluation =
13. Vacation time -- follows school calendar with a
14. total of 4 weeks vacation throughout the year.
15.

ACCESSION NUMBER: VT103458

PUBLICATION DATE: 29OCT76

TITLE: 1977 TELEVISION.

DESCRIPTOR: *CATALOGS; *TELECOURSES; *COURSE DESCRIPTIONS; *TELEVISION CURRICULUM

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 116P.

ABSTRACT: THIS CATALOG OF TELECOURSES PROVIDES DESCRIPTIONS OF TELEVISION COURSES WHICH ARE AVAILABLE IN A VARIETY OF SUBJECT AREAS FOR ALL EDUCATIONAL LEVELS FROM THE AGENCY FOR INSTRUCTIONAL TELEVISION (AIT). THE COURSES WERE DEVELOPED BY POOLING THE RESOURCES OF MANY EDUCATIONAL AND BROADCASTING AGENCIES IN A COOPERATIVE EFFORT. A GENERAL DESCRIPTION OF EACH TELEVISION COURSE APPEARS ALONG WITH BRIEF DESCRIPTIONS OF THE INDIVIDUAL LESSONS AND INFORMATION ABOUT PRODUCER, TIME, AND EDUCATIONAL LEVEL. THE COLLECTION IS INDEXED BY SUBJECT AREA AND BY GRADE LEVEL, AND INFORMATION IS PROVIDED CONCERNING RENTAL POLICIES, PROCEDURES, AND PRICES. INFORMATION IS ALSO PROVIDED ABOUT THE HISTORY AND DEVELOPMENT OF AIT, PROJECT DEVELOPMENT, AND NEW PROJECTS. (NJ)

AVAILABILITY: AGENCY FOR INSTRUCTIONAL TELEVISION, BOX A, BLOOMINGTON, INDIANA 47401.

INSTITUTION NAME: NATIONAL INSTRUCTIONAL TELEVISION CENTER, BLOOMINGTON, IND.

VT103 45

agency for instructional television

VT 103 458

2

AIT Offices

Main Office:
Agency for Instructional Television
Box A
Bloomington, Indiana 47401
Phone: 812 339-2203

East: AIT Eastern Office
Suite 421
Reston International Center
11800 Sunrise Valley Drive
Reston, Virginia 22091
Phone: 703 860-4445
Representative: Francis Thompson

Serves: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Brunswick, Newfoundland, New Hampshire, New Jersey, New York, Nova Scotia, Pennsylvania, Prince Edward Island, Quebec, Rhode Island, Vermont, Virginia, West Virginia.

Midwest: AIT Midwestern Office
Suite 117
5600 West Brown Deer Road
Brown Deer, Wisconsin 53223
Phone: 414 354-8510
Representative: Chet Tomczyk

Serves: Illinois, Indiana*, Iowa, Kansas, Manitoba, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Ontario, South Dakota, Wisconsin.
*Contact AIT Bloomington

South: AIT Southern Office
Suite 125
333 Sandy Springs Circle, N.E.
Atlanta, Georgia 30328
Phone: 404 252-6525
Representative: Larry Laswell

Serves: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee.

West: AIT Western Office
Suite 306
1670 S. Amphlett Blvd.
San Mateo, California 94402
Phone: 415 574-3437
Representative: Gordon Hughan

Serves: Alaska, Alberta, Arizona, British Columbia, California, Colorado, Guam, Hawaii, Idaho, Montana, Nevada, New Mexico, Oklahoma, Oregon, Samoa, Saskatchewan, Texas, Utah, Washington, Wyoming.

The AIT Newsletter, published four times a year, is sent without charge to all interested persons. The publication contains information on AIT courses, activities, and plans. To be placed on the Newsletter's mailing list please write to AIT, Box A, Bloomington, Indiana 47401.

1977 Television

CONTENTS

inside front cover	Regional Offices
2	New Projects
2	Essential Learning Skills Television Project
4	Economic Education Television Project
6	About AIT
6	Programming
8	History and Origin
9	Television Courses
10	Subject Area Guide
12	Grade Level Guide
15	Course Descriptions
102	The Japan Prize Circulating Library
103	Rental Policies, Procedures, Prices
107	Related Materials
107	Teacher's Guides
108	Related Materials for Consortia-Developed Series
109	Films and Videocassettes
111	Research Publications
112	AIT Board of Directors
inside back cover	AIT Professional Staff

agency for instructional television

CE 009 623

4

Essential Learning Skills Television Project

Design of a major classroom television project to strengthen instruction in the essential learning skills is now in progress.

A consortium of state and provincial agencies is supporting the $300,000 design phase, which began July 1, 1976, and will continue through June 1977. The production phase, with a budget of $3,500,000, is scheduled to get underway immediately after and continue through 1979.

To be developed over this three-and-a-half-year period is a series of sixty 15-minute programs for the fifth and sixth grades that will emphasize the critical thinking and study skills and include review of the communication and mathematics skills. The programs are to be available for American and Canadian classrooms beginning in September 1979.

The instructional design is focusing on materials for grades five and six, but it also will provide a general approach for possible series for grades one through four. These later series would emphasize the communication and mathematics skills.

A cooperative television project in the essential learning skills has been in the planning stages since the spring of 1974. The broad subject was given highest priority by educators and educational broadcasters at a 1973-4 series of meetings conducted by the Agency for Instructional Television to identify curriculum areas where television could be most helpful.

Further information on the project can be obtained from AIT.

Economic Education Television Project

A cooperative classroom television project in economic education for nine-to-eleven-year-olds is being developed by the Joint Council on Economic Education, the Canadian Foundation for Economic Education, and the Agency for Instructional Television.

Participating in the project are some forty state and provincial agencies. These agencies will fund the content development of the series. Additional funds for production and utilization will come from other sources.

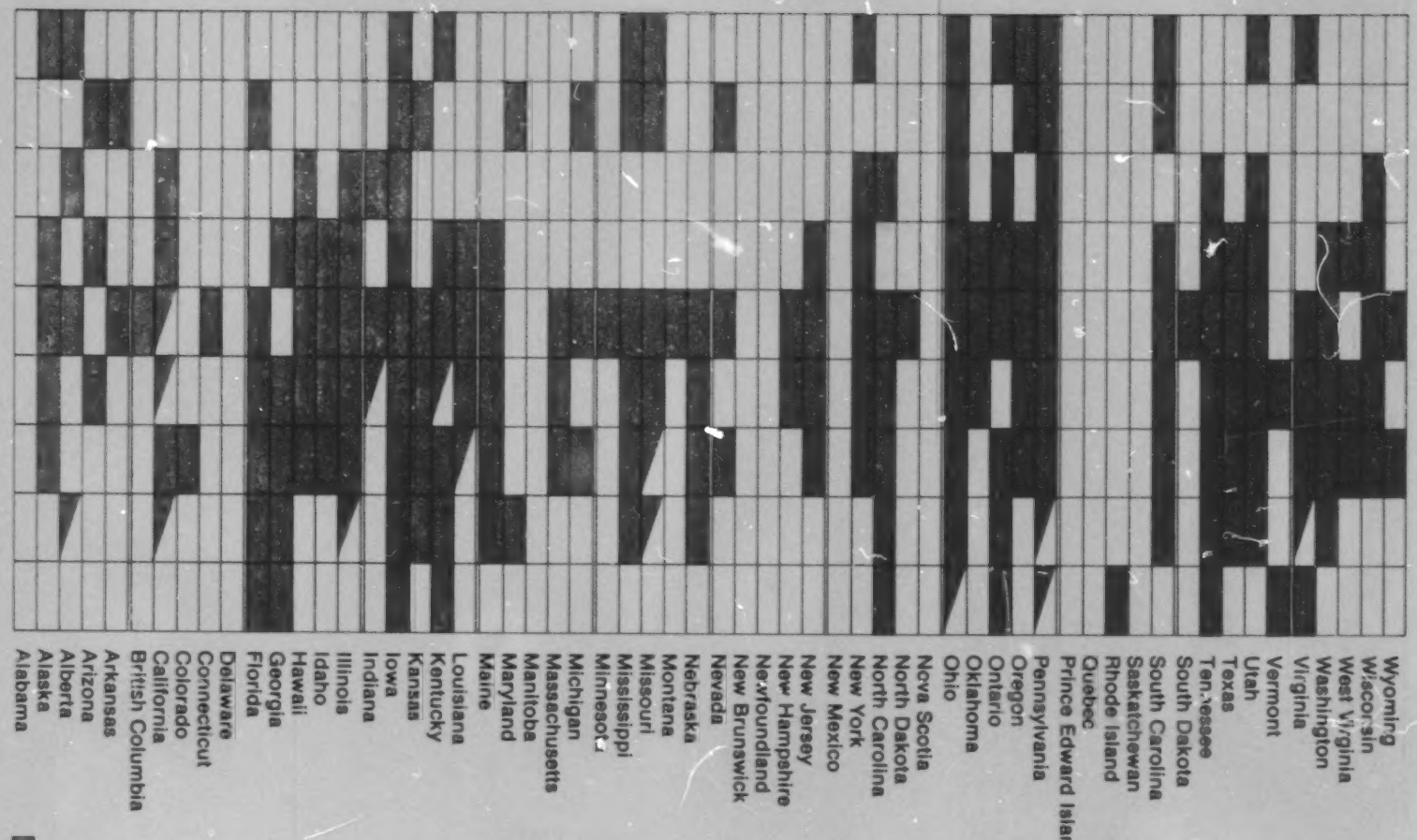
The series of fifteen 20-minute programs and related materials will be completed and available to schools across the United States and Canada by September 1978.

The aims of the project are to increase student knowledge of economics, build skills in using economic principles to make decisions, and motivate further study of the subject. Each program in the series will consider a fundamental economic problem relevant to the daily life of the child, emphasize the economic principles and reasoning involved in dealing with the problem, and introduce a similar but unresolved problem to stimulate classroom follow-up activity.

Further information on the project can be obtained from AIT.

Consortia Profile

(September, 1976)



Full state participation.

Participation by local or regional agency within state.

About AIT Programming

The Agency for Instructional Television is a nonprofit American-Canadian organization established to strengthen education through television and other technologies. AIT develops joint program projects involving state and provincial agencies, and acquires and distributes a wide variety of television and related printed materials for use as major learning resources. It makes many of the television materials available in audio-visual formats.

Development of Projects

In the development of cooperative projects, AIT works closely with educational administrators, teachers, curriculum supervisors, educational broadcasters, and authorities in various subject matter fields, and with professional organizations in the U.S. and Canada. The AIT Board of Directors establishes areas for project exploration on the basis of needs expressed by representatives of the states and provinces at periodic regional meetings conducted by AIT. Study teams organized by AIT then determine how television can make a significant contribution to the classroom in these areas. Projects are refined through a series of reports distributed to all interested persons and through discussions at subsequent regional meetings.

State and provincial agencies pool resources to finance projects. The consortium of agencies involved in a project provides overall guidance through the production period. At various times during the course of production, representatives of the consortium agencies meet with AIT staff members, members of the project's curriculum design team, and other consultants to review the development of the television and related materials, plan information activities for proper introduction of the series, and plan effective utilization of the series. Actual production of the programs is done by selected agencies under the direct supervision of AIT and the project's consultants.

AIT also organizes smaller cooperative efforts to finance and guide the production of exceptionally promising classroom series conceived by individual agencies and the production of new versions of existing series that have proved their effectiveness over the years.

Consortium Projects to Date

The process of cooperative production enables state and provincial agencies to come together to develop programming of a kind and quality that will significantly strengthen education. By the fall of 1976, six consortium projects had been completed under the direction of AIT or its predecessor organization, National Instructional Television, and a seventh project was nearing completion. Forty-seven states and three provinces have been part of one or more of the seven consortia. (See Consortia Profile on opposite page.)

During the summer of 1976, instructional design began on two more cooperative projects—in economics education and the essential learning skills. Information on these projects is given on pages 2 through 5.

Acquired Programming

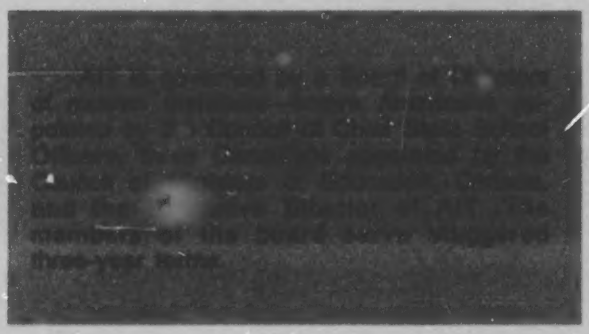
Most of the telecourses offered by AIT were produced by local, state, or regional agencies primarily for their own use. AIT constantly seeks out and reviews new materials, selecting from them for acquisition on the basis of content, instructional design, production quality, and appropriateness for wide distribution. Assisting in this process is a Program Advisory Committee that includes users of AIT materials.

Origin of AIT

AIT was created in 1973 in response to the need for a permanent American-Canadian organization whose structure would enable it to work closely with the states and provinces to expand and improve the cooperative production activity originated by the National Instructional Television Center (NIT). NIT was then a nonprofit self-supporting activity of the Indiana University Foundation in Bloomington.

At a meeting called by NIT in Atlanta in October of 1972, delegates from forty-five states, the District of Columbia, Puerto Rico, and four Canadian provinces recommended the establishment of the new organization. With the cooperation of the Council of Chief State School Officers, a seventeen-member organizing committee worked through the winter months. The incorporation of AIT took place on April 11, 1973.

On July 1, 1973, NIT became a division of AIT. The transfer included the entire NIT operation—existing staff, headquarters facilities and regional offices, and all NIT services.



History of NIT

National Instructional Television evolved from a small organization financed for its first five years (1962-67) by the U.S. Office of Education. Known initially as the National Instructional Television Library, it had been created to demonstrate whether a national clearinghouse for recorded instructional television programs was educationally desirable and economically feasible.

For the first three years of the demonstration, the organization was administered by National Educational Television (NET) in New York City. In 1965 it became the National Center for School and College Television and began operation under the Indiana University Foundation in Bloomington. When the USOE demonstration was completed in 1967, the Foundation provided partial support. In 1968 NCSCT changed its name—to National Instructional Television Center. In 1970 NIT became self-supporting, though it remained a project of the Indiana University Foundation until its transfer to AIT in 1973.

In the late 1960's, working with educators and broadcasters across the country, NIT began the effort to identify curriculum areas where television could be most useful and to develop new materials in these areas. Out of this activity came the idea of the consortium—in which many educational and broadcasting agencies pool their resources to create major classroom series beyond the means of any one agency. The success of these cooperative efforts led directly to the establishment of the Agency for Instructional Television.

Course Descriptions

- The process of classroom evaluation and revision has been a part of the development of some of the series described in this catalog. See page 111 for a list of research publications related to AIT series. For further information on evaluation components, please write to: Director of Research, AIT.

- The post-secondary courses developed by the Harvard University-based Commission on Extension Courses and the U.S. Navy were intended originally to make college-level education available to Navy personnel at sea and at various naval installations. Designed to supplement the work of on-campus instructors, they can be used independently for non-credit programs.

- For each course description, the date following the producing agency indicates the year the course was released for distribution.

Subject Area Guide

PRIMARY THROUGH SENIOR HIGH SCHOOL

Art

	Units	Length	Page
Art for the Day	80	4'	20
The Draw Man	32	15'	32
Images & Things	30	20'	46
Teacher Programs	3	30'	46
Let's Draw	34	15'	52
Meet the Arts	15	30'	63
Primary Art	30	15'	72

Career Development

	Units	Length	Page
bread & butterflies	15	15'	22
Teacher Program	1	20'	22
Informational Program	1	15'	22

Communications

	Units	Length	Page
Code/English	15	20'	25
Contract!	15	20'	29
Creative Dramatics	9	20'	30
Teacher Programs	9	30'	30
Discussing Controversial Issues	4	20'	31
Getting the Word	31	20'	40
TV Today	8	30'	88
Word Workers, Inc.	25	15'	96
Words Are For Reading	10	15'	97
Wordsmith	30	15'	98

Early Childhood

	Units	Length	Page
The MeTooShow	4	20'	64
Teacher-Parent Program	1	60'	64
Ripples	36	15'	79
Teacher Programs	3	30'	79

Foreign Language

	Units	Length	Page
En Français	26	15'	35

Health and Physical Education

	Units	Length	Page
All About You	30	15'	17
Inside/Out	30	15'	48
Teacher Program	1	30'	48
Informational Program	1	15'	48
Ready? Set . . . Go! Level I	30	20'	77
Ready? Set . . . Go! Level II	30	20'	77
Teacher Programs	4	30'	77
Self Incorporated	15	15'	83
A Time of Your Life	15	20'	90
Teacher Programs	2	30'	90

Language Arts

	Units	Length	Page
Book, Look and Listen	30	10'	21
Code/English	15	20'	25
Contemporary Poetry	6	20'	28
Contract!	15	20'	29
Creative Dramatics	9	20'	30
Teacher Programs	9	30'	30
Discussing Controversial Issues	4	20'	31
Getting the Word	31	20'	40
How Can I Tell You?	15	15'	44
Imagine That . . .	15	15'	47
Teacher Program	1	30'	47
Magic Pages	30	15'	55
A Matter of Fact	15	20'	60
A Matter of Fiction	15	20'	61
Once Upon A Town	15	20'	68
Picture Book Park	16	15'	70
Puppets and the Poet	4	20'	75
Readers' Cube	15	20'	76
Secondary Developmental Reading	30	25'	82
Spinning Stories	15	15'	84
Stories of America	32	15'	87
Tell Me a Story	30	15'	89
Teacher Program	1	30'	89
Word Workers, Inc.	25	15'	96
Words Are For Reading	10	15'	97
Wordsmith	30	15'	98
Zebra Wings	15	20'	101
Teacher Program	1	20'	101

Mathematics

	Units	Length	Page
Math Matters	20	15'	58
MeasureMetric	12	15'	62

Music

	Units	Length	Page
Stepping into Melody	30	15'	85
Stepping into Rhythm	30	15'	86
The Tune-Up Shop	20	15'	91

Safety

	Units	Length	Page
About Safety	42	5'	15

Science	Units	Length	Page
About Science	40	8′	16
All About You	30	15′	17
Animals & Such	16	15′	19
Community of Living Things	32	20′	27
First Films on Science	10	15′	39
Hands On, Grade 1	10	15′	41
Hands On, Grade 2	12	15′	41
Hands On, Grade 3	14	15′	41
Hands On, Grade 4	12	15′	41
Hands On, Grade 5	12	15′	41
Matter & Motion	17	15′	59
Natural Science Specials	14	20′	66
Search for Life	3	15′	81
The Science Shed	15	20′	80
Universe and I	20	20′	93
Why?	32	15′	95
Social Studies			
Breakthru	10	23′	23
Children of the World	6	30′	24
Common Cents	5	15′	26
Creative Dramatics	9	20′	30
Teacher Programs	9	30′	30
Explorers Unlimited	33	15′	36
If You Live in a City, Where Do You Live	5	30′	45
Teacher Program	1	30′	45
It's All Up To You	13	15′	51
Teacher Program	1	30′	51
Let's See America	26	30′	53
The World 2000	12	15′	54
1977	32	20′	67
Other Families, Other Friends	32	15′	69
Pilgrims to the West	6	20′	71
Project: History	10	20′	74
Rights and Responsibilities	11	20′	78
Stories of America	32	15′	87
Two Cents' Worth	15	15′	92
What's My Thing?	6	10′	94
POST-SECONDARY			
Communications			
TV Today	3	30′	88

Economics	Units	Length	Page
Economics and the Public Interest	15	30′	34
Foreign Language			
En Français	26	15′	35
Government			
American National Government	15	30′	18
History			
World History I	15	30′	99
World History II	15	30′	100
Literature and Composition			
Expository English I	15	30′	37
Expository English II	15	30′	38
Major American Books	15	30′	56
Psychology			
Man and His Motives	15	30′	57
Principles of Behavior	15	30′	73
Sociology			
Introduction to Sociology	16	30′	50
TEACHER IN-SERVICE			
Communications			
Discussing Controversial Issues	4	20′	31
The Heart of Teaching	5	15′	43
Health			
Drugs: The Children Are Choosing	7	30′	33
The Heart of Teaching	5	15′	43
Mathematics			
Metrify or Petrify	8	30′	65
Special Education			
Integration of Children with Special Needs in a Regular Classroom [Lexington (Mass.) Teacher Training Project]	10	30′	49

Grade Level Guide

Although AIT courses have been designed for specific grade levels, most can be used at several grade levels at the professional discretion of the user.

Primary (Kindergarten–3rd Grade)

	Units	Length	Page
About Safety	42	5′	15
All About You	30	15′	17
Book, Look and Listen	30	10′	21
Common Cents	5	15′	26
Explorers Unlimited	33	15′	36
First Films on Science	10	15′	39
Hands On, Grade 1	10	15′	41
Hands On, Grade 2	12	15′	41
Hands On, Grade 3	14	15′	41
How Can I Tell You?	15	15′	44
Imagine That . . .	15	15′	47
Teacher Program	1	30′	47
Let's Draw	34	15′	52
Magic Pages	30	15′	55
The MeTooShow	4	20′	64
Teacher-Parent Program	1	60′	64
Once Upon A Town	15	20′	68
Other Families, Other Friends	32	15′	69
Picture Book Park	16	15′	70
Primary Art	30	15′	72
Ready? Set . . . Go! Level I	30	20′	77
Ready? Set . . . Go! Level II	30	20′	77
Teacher Programs	4	30′	77
Ripples	36	15′	79
Teacher Programs	3	30′	79
Spinning Stories	15	15′	84
Stepping into Melody	30	15′	85
Stepping into Rythm	30	15′	86
Stories of America	32	15′	87
Tell Me a Story	30	15′	89
Teacher Program	1	30′	89
The Tune-Up Shop	20	15′	91
Two Cents' Worth	15	15′	92
Why?	32	15′	95
Word Workers, Inc.	25	15′	96
Words Are For Reading	10	15′	97

Intermediate (4-7)

	Units	Length	Page
About Science	40	8′	16
Animals & Such	16	15′	19
Art for the Day	80	4′	20
bread & butterflies	15	15′	22
Teacher Program	1	20′	22
Informational Program	1	15′	22
Breakthru	10	23′	23
Children of the World	6	30′	24
Creative Dramatics	9	20′	30
Teacher Programs	9	30′	30
Code/English	15	20′	25
The Draw Man	32	15′	32
Explorers Unlimited	33	15′	36
First Films on Science	10	15′	39
Hands On, Grade 4	12	15′	41
Hands On, Grade 5	12	15′	41
How Can I Tell You?	15	15′	44
If You Live in a City, Where Do You Live	5	30′	45
Teacher Program	1	30′	45
Images & Things	30	20′	46
Teacher Programs	3	30′	46
Inside/Out	30	15′	48
Teacher Program	1	30′	48
Informational Program	1	15′	48
It's All Up To You	13	15′	51
Teacher Program	1	30′	51
Let's See America	26	30′	53
Math Matters	20	15′	58
Matter & Motion	17	15′	59
MeasureMetric	12	15′	62
Meet the Arts	15	30′	63
Natural Science Specials	14	20′	66
1977	32	20′	67
Once Upon A Town	15	20′	68
Other Families, Other Friends	32	15′	69
Readers' Cube	15	20′	76
The Science Shed	15	20′	80
A Time Of Your Life	15	20′	90
Teacher Programs	2	30′	90
What's My Thing?	6	10′	94
Why?	32	15′	95
Wordsmith	30	15′	98
Zebra Wings	15	20′	101
Teacher Program	1	20′	101

Junior High School (7-9)

	Units	Length	Page
About Science	40	8′	16
Art for the Day	80	4′	20
Code/English	15	20′	25
Community of Living Things	32	20′	27
Contemporary Poetry	6	20′	28
Contract!	15	20′	29
Creative Dramatics	9	20′	30
Teacher Programs	9	30′	30
The Draw Man	32	15′	32
Getting the Word	31	20′	40
Images & Things	30	20′	46
Teacher Programs	3	30′	46
It's All Up To You	13	15′	51
Teacher Program	1	30′	51
Life World 2000	12	15′	54
Math Matters	20	15′	58
A Matter of Fact	15	20′	60
A Matter of Fiction	15	20′	61
MeasureMetric	12	15′	62
Natural Science Specials	14	20′	66
1977	32	20′	67
Pilgrims to the West	6	20′	71
Project: History	10	20′	74
Puppets and the Poet	4	20′	75
Rights and Responsibilities	11	20′	78
Search for Life	3	15′	81
Secondary Developmental Reading	30	25′	82
Self Incorporated	15	15′	83
Universe and I	20	20′	93

Senior High School

	Units	Length	Page
About Science	40	8′	16
Art for the Day	80	4′	20
Contemporary Poetry	6	20′	28
Contract!	15	20′	29
Discussing Controversial Issues	4	20′	31
En Français	26	15′	35
Getting the Word	31	20′	40
Life World 2000	12	15′	54
A Matter of Fact	15	20′	60
A Matter of Fiction	15	20′	61
Pilgrims to the West	6	20′	71
Project: History	10	20′	74
Puppets and the Poet	4	20′	75
Rights and Responsibilities	11	20′	78
Search for Life	3	15′	81
TV Today	8	30′	88

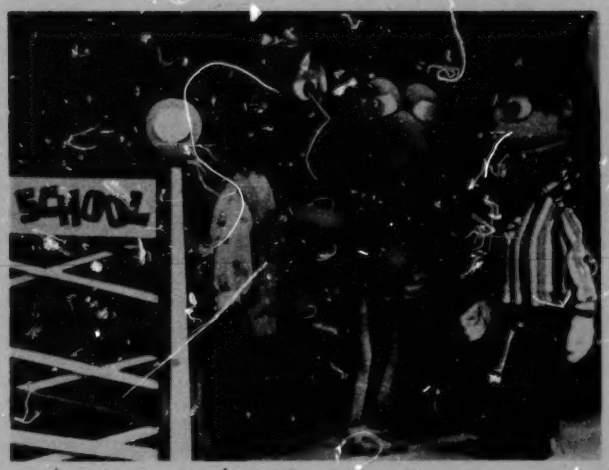
Post-Secondary

	Units	Length	Page
American National Government	15	30′	18
Economics and the Public Interest	15	30′	34
En Français	26	15′	35
Expository English I	15	30′	37
Expository English II	15	30′	38
Introduction to Sociology	16	30′	50
Major American Books	15	30′	56
Man and His Motives	15	30′	57
Principles of Behavior	15	30′	73
TV Today	8	30′	88
World History I	15	30′	99
World History II	15	30′	100

Teacher In-Service

	Units	Length	Page
Discussing Controversial Issues	4	20′	31
Drugs: The Children Are Choosing	7	30′	33
The Heart of Teaching	5	15′	43
Integration of Children with Special Needs in a Regular Classroom [Lexington (Mass.) Teacher Training Project]	10	30′	49
Metrify or Petrify	8	30′	65

About Safety



Forty-two 5-minute color lessons
Primary
6-page combination teacher's guide and fact sheet

Produced by the Mississippi Authority for Educational Television (1973).

For purchase only—ABOUT SAFETY is offered on fourteen videotape reels with three units per reel. Users can purchase the entire series or individual reels:
Price per reel—$130 plus tape

The series is also available on videocassette.

Using a cast of puppets, this course teaches basic concepts in traffic, fire, outdoor play, vacation, school, and recreation safety. The featured puppet in the series is Clyde Frog, a careless, carefree schoolager whose ignorance and disregard for safety rules continually get him into trouble. This series of short, open-ended programs encourages the child to develop a positive and responsible attitude towards the safety of himself and others.

LESSONS

Reel One

Clyde Learns School Bus Rules (4:00)
Clyde Gets Off the School Bus (3:39)
Clyde Discovers Winter Safety (4:35)

Reel Two

Clyde Finds His Way to School (4:33)
Clyde on the Safety Patrol (3:53)
Clyde Walks from School (4:29)

Reel Three

A Bike Ride with Clyde (4:37)
Clyde Rides in a Car (4:33)
Clyde Learns About Reflective Tape (3:32)

Reel Four

Clyde on the Playground (4:17)
Clyde Learns Classroom Safety (4:06)
Clyde Gets in Trouble at School (4:11)

Reel Five

Clyde Learns About Fire Safety (3:55)
Clyde Learns About First Aid (4:17)
Clyde and the Tornado (5:36)

Reel Six

Clyde Takes a Hike (4:22)
Clyde Goes Trick or Treating (4:15)
Clyde Flies a Kite (3:47)

Reel Seven

Clyde Learns About Germs (5:13)
Clyde at Home (4:37)
Clyde Learns About Gun Safety (2:47)

Reel Eight

Clyde on the Safety Council (3:39)
Clyde Reads Traffic Signs (4:34)
Clyde Explores the Way to School (4:35)

Reel Nine

Clyde Gets a Taste of Kitchen Safety (6:01)
Clyde Discovers Bathroom Safety (3:32)
Clyde Learns About Water Safety (5:00)

Reel Ten

Clyde on Halloween (3:50)
Clyde and the Firecracker (4:55)
Clyde Learns Safe Sledding (4:22)

Reel Eleven

Clyde Goes Hitch-Hiking (4:45)
Clyde on the Railroad Tracks (4:41)
Clyde at the Bus Stop (4:38)

Reel Twelve

Clyde Reads About Clothing Fires (5:20)
Clyde Examines Medicine Cabinet (4:14)
Clyde Reports his Accident (4:08)

Reel Thirteen

Clyde Takes a Swim (4:18)
Clyde Visits the Farm (5:26)
Clyde Walks the Halls (4:40)

Reel Fourteen

Clyde Tests His Bicycle Knowledge (4:54)
Clyde Enjoys Bicycle Safety (4:19)
Clyde Learns Some Responsibility (4:22)

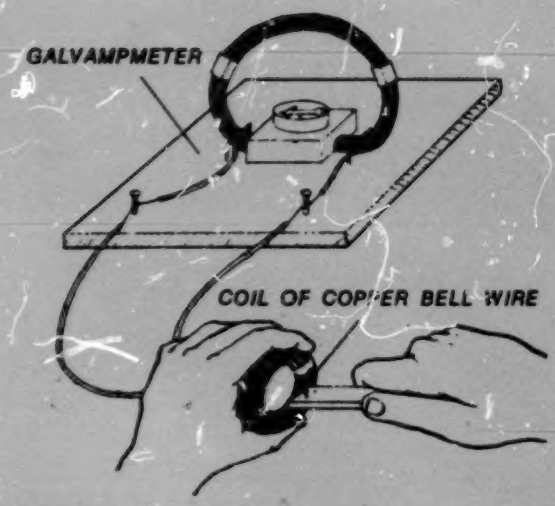
About Science

Forty 5 to 8-minute color lessons
Intermediate, junior high, senior high
43-page teacher's guide

Produced by the Mississippi Authority for Educational Television (1972).

For purchase only—ABOUT SCIENCE is offered on nine videotape reels with three to five units per reel. Users can purchase the entire series or individual reels:
Reels 1-6—$240 plus tape
Reel 7—$230 plus tape
Reels 8-9—$220 plus tape

The series is also available on videocassette.



This course actively engages the viewer in the process of scientific inquiry. Each lesson focuses on a single concept, providing a body of knowledge that is manageable for both teacher and student. The viewer sees only the hands of the person performing the laboratory experiment while an off-camera narrator describes the action step by step. A light, original jazz score complements the narration.

LESSONS

Reel One

Preparation of Oxygen (5:41)
Physical Properties of Oxygen (5:06)
Chemical Properties of Oxygen (5:18)
Preparation of Carbon Dioxide (4:51)
Properties of Carbon Dioxide (5:08)

Reel Two

Dry Ice (5:28)
A Flame Test (5:40)
Distillation (5:25)
Combustion and Weight Changes (5:13)
Electroplating (4:45)

Reel Three

Conductivity (5:04)
Acids (4:58)
Bases and Neutral Compounds (4:59)
Mixtures and Compounds (5:06)
Electrolysis (5:31)

Reel Four

Conservation of Matter (4:16)
A Mercury Barometer (4:16)
Carbohydrates: Sugars and Starches (5:50)
Fats and Proteins (6:20)
The Effects of Air Pressure (4:11)

Reel Five

Electroscope (7:24)
An Electric Circuit (4:24)
A Series Circuit (4:16)
A Parallel Circuit (4:34)
Static Electricity (5:27)

Reel Six

Understanding Magnets (5:10)
Magnetic Behavior (4:34)
Electromagnets (5:12)
Making a Telegraph: An Electromagnet (6:13)
An Electric Motor (4:49)

Reel Seven

Wet Cell (5:42)
Dry Cell (4:35)
Short Circuits and Fuses (6:25)
Producing an Electric Current (5:52)

Reel Eight

An Electric Bell (5:21)
Expansion and Contraction (5:30)
The Mineral Kingdom (7:31)

Reel Nine

Mass and Weight (6:35)
Volume (6:45)
Density (11:07)

All About You

Thirty 15-minute color lessons
Primary
84-page teacher's guide

Produced for AIT by Massachusetts Educational Television (21 Inch Classroom) at WGBH-TV, Boston (1974).

Film clips, models, microscope slides, and a lively cast of puppets are a few of the devices used to introduce first and second graders to the marvel of the human body, in a series that focuses on physical growth and development, and the importance of good health habits. Based on the newest advances in science and health, ALL ABOUT YOU explores children's emotions, individual differences, and cultural influences in lessons designed to stimulate inquiry and generate active viewer involvement.

Louise McNamara, the television teacher, involves the viewing students, encouraging them to reply to her questions and participate actively in the lessons. Playful, whimsical, or deeply serious, she creates an atmosphere of interest and inquiry that is particularly helpful to the classroom teacher.

Ada B. Litchfield, principal consultant and scriptwriter for the course is the author of a number of books for children. Ms. Litchfield has been a first-grade teacher and an editor for the Houghton Mifflin Company.

LESSONS

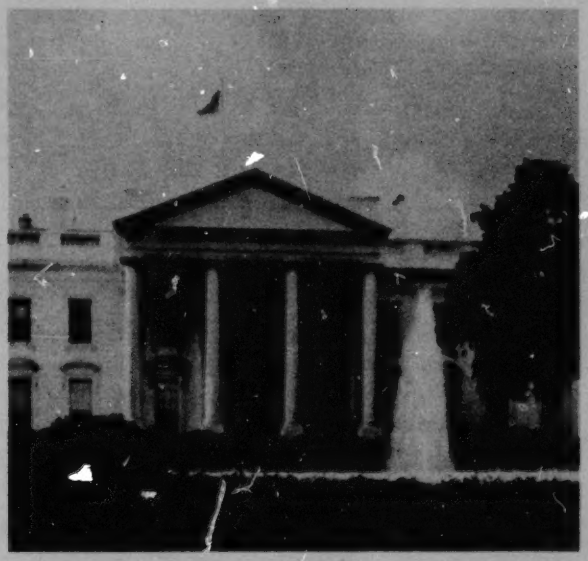
1. **What Are You Anyway?**—Helps children think about their minds and bodies. (14:48)
2. **What Holds You Up?**—Demonstrates how the skeleton is constructed. (14:28)
3. **No Strings on You**—Demonstrates how muscles and tendons hold the skeleton together. (14:34)
4. **Move Those Muscles!**—Discusses the importance of exercising everyday. (14:22)
5. **What's Your Fuel?**—Shows how the body changes food into fuel. (14:02)
6. **It's What You Eat**—Explains the four basic food groups, and discusses a balanced diet. (14:11)
7. **Good Mouthkeeping**—Illustrates good tooth care. (14:14)
8. **What Are You Made Of?**—Explains the parts and functions of cells. (14:25)
9. **Take a Deep Breath**—Demonstrates the body's need for oxygen. (14:20)
10. **Your Heart: The Mighty Muscle**—Shows how heart, blood, and blood vessels work together. (14:30)
11. **Getting Rid of Waste**—Shows how food becomes fuel, then a waste product. (14:29)
12. **Your Birthday Suit**—Discusses skin structure and color. (13:38)
13. **Getting the Message**—Illustrates how messages are received and interpreted by the brain. (14:25)
14. **Your Busy Brain**—Demonstrates how the brain is like a control center, constantly receiving and sending messages. (14:14)
15. **Listen, Look, and Learn**—Looks at the structure and function of the eye and ear. (14:10)
16. **Handy Hands**—Demonstrates how hands help people work, play, and communicate. (14:24)
17. **Talk, Talk, Talk**—Illustrates man's need for language. (14:28)
18. **What Keeps You Alive?**—Considers what it means to be alive. (14:10)
19. **In the Beginning**—Traces the development of a human baby from a single cell. (14:02)
20. **Secrets in Your Cells**—Illustrates that some things, like physical traits, are determined by genes. (14:08)
21. **Look At You Now**—Helps youngsters consider their own development. (14:10)
22. **No Two Alike**—Emphasizes the role of experience in shaping personality. (14:32)
23. **Sneezles, Wheezles, and Measles**—Tells how germs cause disease. (14:28)
24. **Watch Out!**—Emphasizes that children must sometimes watch out for their own safety. (14:34)
25. **If You Go to the Hospital**—Tells the story of a child's stay in Boston Children's Hospital. (14:10)
26. **You and Your Feelings**—Talks about feelings and how people react to them. (14:17)
27. **Everybody Is Afraid Sometimes**—Discusses real and imaginary fears. (14:09)
28. **What Are Families For?**—Discusses family relationships, including animal and human families. (14:13)
29. **Everybody Needs a Friend**—Suggests right and wrong ways of making and keeping friends. (14:40)
30. **Everybody Else and You . . .**—Examines family life in other countries. (14:39)

American National Government

(Government I)

Fifteen 30-minute black and white lessons
Post-secondary
2-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH, Boston (1967).



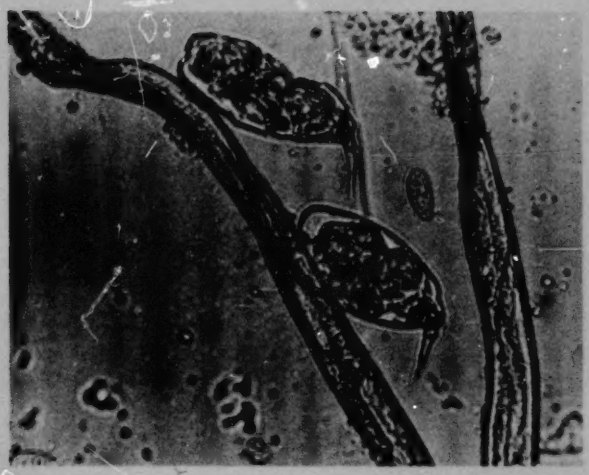
This course introduces the development of the three main institutions of American national government—Congress, the Presidency, and the Supreme Court. Each is traced historically from the Constitutional Convention to the present and is thoroughly analyzed in terms of its power, influence, and function.

These lectures have been prepared and presented by Professor Carrol F. Miles, Chairman, Social Science Department, Simmons College; formerly Professor of Government, Simmons College.

LESSONS

1. **Fundamentals of American Government**—Introduces eight principles of American government. (28:50)
2. **The Founding Fathers**—Deals with the Constitutional Convention and its participants. (27:10)
3. **The Functions of Congress**—Examines the basic legislative functions of Congress. (28:54)
4. **Congressional Reform**—Asks how well Congress performs its functions as a democratic and representative body. (28:49)
5. **Congress and the President**—Emphasizes the importance of the Supreme Court decision in Baker vs. Carr. (28:52)
6. **The Roles of the President**—Studies the United States Presidency as an institution of government. (28:55)
7. **Presidental Leadership**—Discusses the five constituencies of the Presidency: executive officialdom, Congress, party leaders, citizens, and officials from other nations. (28:55)
8. **Limitations on the Presidency**—Reviews the function of the Electoral College. (28:56)
9. **Political Parties**—Analyzes political parties as a means through which citizens organize themselves to control government. (28:53)
10. **The Supreme Court**—Studies the responsibilities of the Supreme Court members. (28:54)
11. **The Law and Desegregation**—Interprets the 14th Amendment as a guarantee of certain civil and political liberties. (28:48)
12. **The Changing Court**—Surveys some decisions handed down by the Supreme Court since 1937. (28:52)
13. **The First Amendment**—Emphasizes the first ten amendments to the Constitution as checks on the national government. (28:54)
14. **The New Federalism**—Studies the principle of federalism, frequently invoked in defense of states rights. (28:50)
15. **The Bureaucracy: General Conclusions**—Makes the distinction between the bureaucracy and the executive branch. (28:54)

Animals & Such



Sixteen 15-minute color lessons in four modules
Intermediate
28-page teacher's guide

Produced by Hampton Roads Educational Television Association, WHRO-TV, Norfolk (1972).

Field trips to zoos, to an animal shelter, and to terrestrial saltwater and fresh-water habitats acquaint students with the life processes of many animals. Specialized photographic techniques allow viewers to see an amoeba capturing a stentor, blood rushing through a tadpole's tail, and other microscopic events, in a series of lessons that explores ecological relationships, stresses the need for conservation, and emphasizes the importance of observation and other scientific techniques in problem-solving. ANIMALS & SUCH is a companion course to MATTER & MOTION.

Larry Crum, producer, designer, and narrator for ANIMALS & SUCH, has been studio teacher and producer for the Hampton Roads Educational Television Association since 1968. Before that he taught biology and earth science in Virginia public schools.

Stewart Harris, cinematographer for the series, has film credits for more than a hundred projects in instructional and public television. He received several awards for excellence in photography for COMMUNITY OF LIVING THINGS, another Crum-Harris series.

LESSONS

Module Blue: HABITATS

1. **Life on a Rotting Log**—Examines a rotting log as the habitat of countless creatures, each with its own means of survival. (14:34)
2. **Microscopic Pond Life**—Demonstrates that microscopic life is complex despite its smallness; shows amoeba, paramecia, and volvox. (14:30)
3. **Ocean Animals**—Considers characteristics of a host of marine creatures, including starfish, sea slugs, and octopi. (14:27)
4. **Birds of Fisherman's Island**—Looks at the variety of birds which exist along the Atlantic flyways, and examines their dependence on wild areas for survival. (14:30)

Module Brown: TYPES OF VERTEBRATES

1. **Snakes and the Like**—Investigates a variety of reptiles: turtles, snakes, lizards, and crocodiles. (14:25)
2. **Fish**—Discusses how various fresh-water and saltwater fish breathe, swim, feed, and reproduce. (14:33)
3. **Frogs, Toads, and Salamanders**—Examines amphibians in relation to their life cycle and adaptations for survival. (14:35)
4. **Animals with Hair**—Focuses on the types, features, and behavior of mammals, from cats to man. (14:30)

Module Green: ANIMALS AND PLANTS

1. **About Pets**—Visits an ASPCA shelter, and discusses animal survival and proper treatment of pets. (14:31)
2. **A Visit to the Zoo**—Gives detailed information about zoo dwellers and endangered species. (14:30)
3. **Plants or Animals**—Considers the similarities of and differences between animals and plants, pointing out that some creatures have features of both. (14:30)
4. **Kinds of Plants**—Investigates the two groups of plants —those with chlorophyll and those without. (14:33)

Module Red: LIFE PROCESSES

1. **What Animals Eat**—Examines the feeding processes of animals, including parasites. (14:32)
2. **Movement within Life**—Studies internal movement and how it is accomplished in both plants and animals. (14:30)
3. **Living Things Grow and Change**—Shows how insects develop through a series of stages, and how markings reveal age in trees and clam shells. (14:30)
4. **Living Things Reproduce**—Observes how living things reproduce, and compares simple and complex methods of reproduction. (14:33)

Art for the Day

Eighty 3 to 4-minute color lessons
Intermediate, junior high, senior high
6-page combination teacher guide and fact sheet

Produced by the Mississippi Authority for Educational Television (1972).

For purchase only—ART FOR THE DAY is offered on ten videotape reels with eight units per reel. Users can purchase the entire series or individual reels:
Price per reel—$270 plus tape

The series is also available on videocassette.

Each lesson in ART FOR THE DAY is an opportunity to explore a single work of art. The camera focuses on specific elements in a painting or sculpture, guiding the viewer from one set of experiences to another, and a brief narration provides information and suggestions that help him to see the work as the sum of its interdependent parts. Encountering artworks in this fresh light encourages the student to experience the unique vitality of each work, and to interpret it for himself. Each program is approximately 3 minutes in length.

LESSONS

Reel One
People and Dog in the Sun, *Joan Miró (Spanish, 1893-)*
Room at Arles, *Vincent van Gogh (Dutch, 1853-1890)*
Head of Two Clowns, *Georges Rouault (French, 1871-1958)*
Landscape (Les Chaumieres), *Maurice Vlaminck (French, 1876-1958)*
I and My Village, *Marc Chagall (Russian, 1887-)*
The Three Masks, *Carl Hofer (1878-1955)*
The Old King, *Georges Rouault (French, 1871-1958)*
A Girl with a Watering Can, *Pierre Auguste Renoir (French, 1841-1919)*

Reel Two
The Spirit of 1776, *Solomon Willard (American, 1783-1861) Nat Werner (1907-)*
Egyptian Cat, (Sculpture), *Ancient Egypt*
Dempsey and Firpo, *George Bellows (American, 1882-1925)*
At the Circus, *Toulouse-Lautrec (French, 1864-1901)*
Weathervane Horse, *Early American Craft Item*
Zapatistas, *Jose Orozco (Mexican, 1883-1949)*
Boys in a Pasture, *Winslow Homer (American, 1836-1910)*
Nefertiti (Sculpture) *Ancient Egypt*

Reel Three
Fog Warning, *Winslow Homer (American, 1836-1910)*
Woman with a Cat, *Pierre Auguste Renoir (French, 1841-1919)*
Palazzo da Mula, Venice, *Claude Monet (French, 1840-1926)*
Starry Night, *Vincent van Gogh (Dutch, 1853-1890)*
The Laundress, *Honoré Daumier (French, 1808-1879)*
Head of a Clown, *Bernard Buffet (French, 1928-)*
The Bath, *Mary Cassatt (American, 1844-1926)*
Man in a Golden Helmet, *Rembrandt van Ryn (Dutch, 1606-1669)*

Reel Four
The Rabbit, *Albrecht Dürer (German, 1471-1528)*
A Peasant Wedding, *Pieter Bruegel (Flemish, 1525/30-1569)*
The Cook, *Jan Vermeer (Dutch, 1632-1675)*
The Peaceable Kingdom, *Edward Hicks (American, 1780-1849)*
Child Holding a Dove, *Pablo Picasso (Spanish, 1881-1973)*
Breezing Up, *Winslow Homer (American, 1836-1910)*
Le Gourmet, *Pablo Picasso (Spanish, 1881-1973)*
The Squirrels, *Albrecht Dürer (German, 1471-1528)*

Reel Five
Red Horses, *Franz Marc (German, 1880-1916)*
Adoration of the Shepherds, *Giorgione (Italian, 1476/8-1510)*
The Laughing Cavalier, *Frans Hals (Dutch, 1581/5-1666)*
Still Life with Flowers, *Georges Rouault (French, 1871-1958)*
The Fifer, *Edouard Manet (French, 1832-1883)*
Dancing Class, *Edgar Degas (French, 1834-1917)*
Soap Bubbles, *Jean Baptiste Chardin (French, 1699-1779)*
Trafalgar Square, *Piet Mondrian (Dutch, 1872-1944)*

Reel Six
Gare Saint-Lazare, *Edouard Manet (French, 1832-1883)*
Young America, *Andrew Wyeth (American, 1917-)*
Mardi Gras, *Paul Cezanne (French, 1839-1906)*
The Little Dancer Aged Fourteen (Sculpture) *Edgar Degas (French, 1834-1917)*
Spring (Sculpture) *Ellen Lord (American, 20th Century)*
The Copley Family, *John Singleton Copley (American, 1738-1815)*
Ground Hog Day, *Andrew Wyeth (American, 1917-)*
American Indian Duck (Pottery) *(400-1200 A.D.)*

Reel Seven
The Gates of Jerusalem, *Sharaga Weil (Israeli, 1918-)*
Gypsy Woman with Baby, *Amedeo Modigliani (Italian, 1884-1920)*
Young Raven with Open Mouth (Sculpture) *Eskimo Primitive*
Bodhisattva in Meditation (Sculpture) *Chinese (400 A.D.)*
Dancers, *Zeshin Shibata (Japanese, 1807-1891)*
Portrait of His Son, Nicholas, *Peter Paul Rubens (Flemish, 1577-1640)*
L'Acrobat, *Marc Chagall (Russian, 1887-)*
Menorah, *David Palombo (1920-1966)*

Reel Eight
The Plantation, *Anonymous American (early 1800's)*
Woman with Red Hair, *Amedeo Modigliani (Italian, 1884-1920)*
Fur Traders Descending the Missouri, *George Caleb Bingham (American, 1811-1879)*
Still Music, *Ben Shahn (American, 1898-1969)*
Seven A.M. 1948, *Edward Hopper (American, 1882-1967)*
Creekbed, *Lou Eckert (American, 20th Century)*
The Scout: Friends or Enemies, *Frederic Remington (American, 1861-1909)*
William the Hippo (Sculpture) *Ancient Egypt*

Reel Nine
Nude Descending a Staircase No. 2, *Marcel Duchamp (French, 1887-1968)*
Mount Fuji Behind the Wave Off Kanagawa, *Hokusai (Japanese, 1760-1849)*
Horse Frightened by the Storm, *Eugene Delacroix (French, 1798-1863)*
Rebus, *Robert Rauschenberg (American, 1925-)*
Sampler Embroidered on Linen, *American Folk Art*
Las Meninas, *Diego Velasquez (Spanish, 1599-1660)*
Candlestick, *Early American Craft Item*
The Midnight Ride of Paul Revere, *Grant Wood (American, 1892-1942)*

Reel Ten
Venus de Milo (Sculpture) *Ancient Greece (Discovered 1820)*
The Moneylender and His Wife, *Quentin Massys (Matsys, Metsys) (Flemish, 1464/65-1530)*
Persian Helmet, *c. 1600 A.D.*
The Gulls, *Jan Horton (American, 20th Century)*
Hacha, *Pre-Columbian*
Dog with Flowers, *Anonymous American (early 1800's)*
Guernica, *Pablo Picasso (Spanish, 1881-1973)*
The American National Game of Baseball, *Nathaniel Currier (American, 1813-1888) James M. Ives (American, 1824-1895)*

Book, Look, and Listen

Thirty 10-minute color lessons
Primary
Teacher's guide

Produced by the Maryland State Department of Education (1977).

J. Worthington Book, Hector Projector, and Ethel Earphone are the stars of this series, created to arouse the interest of very young children in all forms of storytelling. Together they personify the reading of print, pictures, and sound. Meeting in a fanciful woodland setting, the three resolve situations related to the lesson concepts, through stories, filmstrips, book illustrations, songs, dance, and pantomime.

The series has an interdisciplinary structure, with emphasis on literature and reading (print and nonprint), early childhood education, understanding of cultural and ethnic minorities, career education, and environmental education. As children enjoy the lessons, they develop an appreciation of reading as an interesting activity.

LESSONS*

The lessons help children to develop:

1. **I Can Read** — the ability to read or interpret sounds, pictures, or stories without words.
2. **I'm Glad I'm Me** — an appreciation of themselves as unique individuals, each with different features and characteristics.
3. **Talent Show Today** — an awareness of individual talents and physical skills.
4. **Places, Places, Special Places** — the realization that children, as well as adults, often need a special place where they can be alone.
5. **Just Plain Rain** — ways of adapting to real, changing, and sometimes disappointing environmental conditions.
6. **Voice Your Choice** — the knowledge that some methods of solving social problems are more positive than other methods.
7. **Happy, Sad, Mad, Glad** — the ability to identify feelings as a first step in learning to manage emotions successfully.
8. **Sometimes Sad, But Mostly Glad** — the ability to recognize feelings in others.
9. **Paint Me a Mood** — the realization that moods can be created or induced by external forces.
10. **Find Out Fast** — an awareness of information sources and knowledge of how to locate information independently.
11. **Need It? Make It!** — the ability to create useful items from a wide range of materials.
12. **Fly a Kite!** — the ability to create toys from a variety of resources.
13. **Album of Families** — positive feelings and an appreciation of their own families and other families.
14. **House, Sweet Home** — the insight that, different as each may be, everyone's home is special to the individual.
15. **Poet? Racer? Dragon Chaser?** — some knowledge of the various occupations in which people are engaged.
16. **Do Not Feed the Animals?** — information about positive relationships with animals.
17. **Games, Games, Games** — an awareness of the literacy and cultural roots of many games.
18. **Pandas and Applesauce** — the ability to differentiate between fantasy and reality, and an appreciation of the need in life for fantasy and imagination.
19. **Imagine!** — a lasting appreciation of imaginary, fictional characters.
20. **Oh, What a Zany Zoo** — imagination through exposure to a collection of fanciful animals.
21. **All Time Favorites** — an understanding of why fables and folktales have been handed down and appreciated by many generations.
22. **The Wonderful Word and Wordless Story Wagon** — the ability to respond to language games with one word, a phrase, or complete sentence stories.
23. **Let's Pretend It** — the skills to create stories from a variety of sources.
24. **Rub-A-Dub-Dub** — the realization that one story may be illustrated in many ways.
25. **Sing a Song and Work Along** — the knowledge and skill to recognize and interpret the story lines in songs.
26. **Tone Tales** — the ability to associate stories and characters with orchestral music and single instruments.
27. **Dance Me a Story** — the ability to interpret stories told through dance.
28. **Mime Time** — the ability to interpret actions and expressions of a pantomimist as a storyteller.
29. **The Play's the Thing** — the skill to interpret story dramatizations and to follow the story line of a play.
30. **Stories, Stories, Stories** — a sense of personal accomplishment regarding their ability to read or interpret sounds, pictures, and stories.

*Times for programs in this series were unavailable at the time of publication.

bread & butterflies

Fifteen 15-minute color lessons
Intermediate
136-page curriculum guide

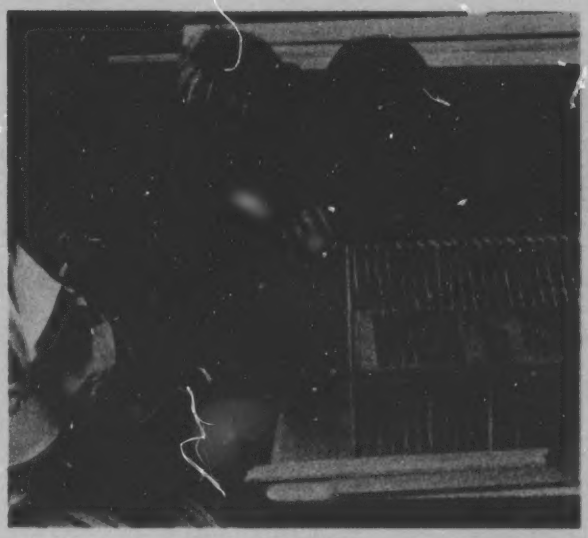
20-minute teacher program
15-minute informational program
Student Activities Workbook
Workshop Training Package

Developed through the resources of a consortium of thirty-nine agencies, organized and managed by AIT. Produced for AIT by NVETA, Annandale; KETC-TV, St. Louis; UNIT Productions, Salt Lake City; WHRO-TV, Norfolk; and Georgia Department of Education, Atlanta (1974).

Rental Fees: The complete course, including informational program and teacher's program, is offered for $1675.00 plus $28.75 for each 10,000 students.

Available for purchase on film and videocassette.

For related materials, see pages 107-110



In programs that present situations from the child's perspective, BREAD & BUTTERFLIES gives children a clearer understanding of successful work behavior and the connection between school and the real world. It also encourages each child to develop his own special capabilities and goals. Winner of Certificate of Creative Excellence, U.S. Industrial Film Festival, 1974; Silver Award, International Film & TV Festival, 1975; and Ohio State Award, 1976.

Chief Consultants to AIT: James E. Bottoms, Ed.D., Director, Division of Program and Staff Development, Georgia State Department of Education; and W. Wesley Tennyson, Ed.D., Professor of Educational Psychology, University of Minnesota.

LESSONS

1. **Tree$ure Hunt** *(Self-Independence and the Economic System)*—Ernie, Monica, and Bill want to go to a carnival, but each must earn money to pay for it. (14:40)
2. **Work Means** *(Why People Work)*—A junior high school girl, doing research for a report, discovers that work means different things to different people. (14:25)
3. **Me, Myself & Maybe** *(Self-Clarification)*—DeAnne overcomes her lack of self-confidence at school when her Aunt Cathy helps her learn some new skills. (14:30)
4. **Decisions, Decisions** *(Decision-Making)*—Tommy must decide whether he wants to continue his friendship with Joey, a misfit shunned by the other boys. (14:17)
5. **School & Jobs** *(Relationship—School, Work, and Society)* This program looks at activities, roles, and personalities in a hospital, a factory, and a general store, and compares them to those of a school. (14:32)
6. **Taking Care of Business** *(The Responsible Self)*—David begins to neglect his responsibilities at home when he starts mowing lawns to earn extra money. (14:43)
7. **I Agree . . . You're Wrong!** *(Interpersonal Skills)*—Mattie, a movie director, and Vince, a cameraman, have a hard time seeing eye-to-eye about how a certain scene should be filmed, and communication ceases. (14:35)
8. **Success Story** *(What Is Success?)*—This is a true story about Dave, who owns a leather shop where he makes and sells his work, and who has learned to define success in his own terms. (14:31)
9. **The Way We Live** *(Life Styles)*—In this documentary, the members of a West Virginia family reveal the values that shape their lives—their attitudes toward work, home life, and leisure activities. (14:28)
10. **Planning Ahead: The Racer** *(Shaping One's Destiny)*—Johnny's dreams of building a soap box racer are not realized until he learns to use equipment properly and to plan ahead. (14:18)
11. **Things, Ideas, People** *(People at Work)*—Three children who think their father has lost his job make lists of job possibilities, classifying them as jobs working with things, people, or ideas. (14:33)
12. **People Need People** *(Interdependency of Workers)*—From trapeze artists to construction workers, this documentary shows examples of positive dependent and interdependent relationships in work and leisure activities. (14:30)
13. **Our Own Two Hands** *(Human Dignity)*—Members of the Holland family, who live on and work a small pig farm, are enthusiastic about having a farm that thrives by "our own two hands." (14:26)
14. **Power Play** *(Power and Influence)*—In this fantasy, a group of rebels create confusion after the school principal announces that the adults will leave the building and the students will take over all responsibilities. (14:20)
15. **Choosing Changes** *(Freedom To Hope, To Choose, and To Change)*—This is the true story of Barbara, an engineer in oceanography, who had the confidence in herself to overcome challenges that others thought would be too difficult for her. (14:24)

Breakthru

Ten 17 to 23-minute color lessons in two modules
Intermediate
20-page teacher's guide

Produced by TRAFCO, Program Council, United Methodist Church (1971).

Cheating, insecurity, sibling rivalry, conflicting codes of behavior, and stealing are some of the social or moral problems dealt with in this series of thought-provoking dramatizations. Viewers are invited to identify with the characters and project themselves into the situations. The series helps students gain a clearer perspective on their personal experiences, look seriously at the kinds of choices available to them in their own lives, and seek values that promise positive satisfaction and fulfillment.

LESSONS

Module A

1. **Big Deal**—Pete and a friend consider hiding another boy's model boat so that their entry will have a better chance of winning first prize in the hobby show. (16:52)
2. **Feud on Third Avenue**—When a rivalry for the class presidency develops into a destructive feud, Lissa begins to understand the infectiousness of hatred. (21:48)
3. **New Neighbors**—When Buck befriends new neighbors from the country despite the taunts of the neighborhood gang, the members of his family realize their own attitudes have been narrow. (18:23)
4. **Nightmare Chaser**—Moving to a new home causes three children to become uneasy about their surroundings. A cat helps them deal with fear and insecurity. (17:05)
5. **The Plain White Envelope**—Steve finds an envelope containing the words for the sixth-grade spelling bee, and must decide either to go ahead and cheat or to disqualify himself. (19:20)

Module B

6. **Goof**—Henry seems to have the knack of doing things the wrong way. When Pam's favorite hamster is missing, she assumes that Henry is responsible. (17:24)
7. **The Haunted House**—Jo, Cynthia, and Jennie sneak into a vacant house and find themselves locked in. When rescued, the girls are convinced of the need for authority and guidance. (21:46)
8. **Talking Hands**—Ruth learns hand language to converse with her deaf aunt, and discovers an important lesson about developing one's talents. (22:48)
9. **The Thief**—Mike's claim that taking books from the school library is not stealing because "nobody's getting hurt," is challenged when Frank dares him to steal a transistor radio. (19:54)
10. **The Trouble With Eunice**—Eunice, who dyed her hair red because her gang decided that was the thing to do, learns how to resist when group pressure and personal standards conflict. (18:00)

Children of the World

Six 30-minute color lessons
Intermediate
20-page teacher's guide

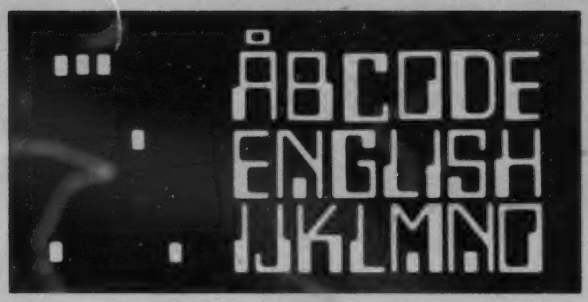
Produced by NET, in cooperation with the Canadian Broadcasting Corporation and UNICEF (1969).

Journeys into the homes and personal lives of children in Brazil, Guatemala, Dahomey, Somalia, Nepal, and Thailand introduce American youngsters to the customs, problems, and challenges faced by people in different nations. The series fosters tolerance, empathy, and the ability to generalize as it explores cultural similarities and differences. In addition to increasing children's awareness of the world around them, CHILDREN OF THE WORLD can be used to help improve their writing, speaking, and observation skills.

LESSONS

1. **Brazil**—Takes a journey with Giardel Francesco Andrade, a thirteen-year-old boy who searches for his father in the mountains and jungles of Brazil. (27:22)
2. **Guatemala**—Accompanies Norberta and Herlinda on an adventure in the highlands of Guatemala. Shows the activities surrounding a festival. (27:20)
3. **Dahomey**—Examines various African life styles while exploring the people's struggle to survive and their desire for change. (28:29)
4. **Somalia**—Focuses on nomadic life in Somalia. Discusses the traditions of family and religious life there. (28:09)
5. **Nepal**—Tours Nepal with a young boy, Uttum Baniya Chhetri. Investigates the changing religious concepts of the people. (28:27)
6. **Thailand**—Follows the experience of Lahor, a twelve-year-old boy. Shows life aboard a barge on the Chao Paya River. (28:29)

Code / English



Fifteen 20-minute black and white lessons
Intermediate, junior high
90-page teacher's guide

Produced by KQED Educational Services, San Francisco (1970).

Concrete and practical questions about language ("Who messed up our spelling and why don't we change it?" "What's such a big deal about the dictionary?" "Which language is the best?") are discussed from the perspective of English as a code—a system of signals and rules for sending and receiving messages. Programs cover the history and dynamics of written and spoken English, introduce the study of linguistics without technical jargon, promote greater awareness of language, and demonstrate the importance of clear language for effective communication.

Bob Smith, author and teacher of CODE/ENGLISH, has taught linguistics, English, Philosophy, psychology, education, Latin, and mathematics. His own educational background includes advanced degrees from Gonzaga University and the University of Michigan.

LESSONS

1. **OWR/Our DUH-BL/Double KOHD/Code**—Codes rely on signals and rules for meaning. The movement from thought to speech to writing is illustrated with the use of a simulated computer. (19:45)
2. **Three (To-Two-Too)'s in English**—This program emphasizes the basic principles of the English code system. (19:32)
3. **Codes for Communicators**—An addition to the computer makes it possible to extend the recoding of written forms of language into Braille, semaphore, Morse code, and shorthand. (19:22)
4. **The Perfect Letter** (Alphabet)—The alphabet works as a set of code signals to represent sounds of spoken English. (19:25)
5. **Smashup!** (Puns & Homophones)—What effective communication owes to clear language is evident in problems caused by conflicting code signals. (19:39)
6. **Bellows, Reed, & Stoppers** (Phonetics)—Human physical equipment works as a code machine to produce the sounds of speech. (19:36)
7. **Magazine & Maggiebean** (Spelling)—Despite the fact that parts of English spelling are disorderly, learning to spell is by no means hopeless. (19:29)
8. **Chop . . . Drop . . . Mark** (Abbreviations)—Many parts of written English are recoded into abbreviated forms. (19:26)
9. **Logograms R = 2 Words** — The study of word-signs introduces a form of English that is not spelled—numbers and other symbols. (19:30)
10. **Cowboys & Codebooks—The Language Library**—All kinds of language books are useful—the dictionary in particular. (19:15)
11. **The Alphabetical Everything** (Dictionary)—A good dictionary can provide practical information at each level of the English code system. (18:29)
12. **Music! Music? Music.** (Punctuation)—Forms of punctuation translate into writing the "music" of speech—the patterns of stress, pitch, and timing. (19:28)
13. **gnitirW fo yrotsiH/History of Writing**—This program reviews the major steps in the history of writing—from Egypt to Asia Minor, to Greece, to Rome, and through France to Britain. (19:38)
14. **Wryte It Rihte!** (Spelling History)—A brief history of the English language, introduces the troublesome discrepancies of spelling. (19:29)
15. **Code/English Clinic Quickie Contest**—The potential of the "Code/English" approach is explored in a wide-ranging exchange about the nature of language. (19:39)

Common Cents

Five 15-minute color lessons
Primary
Teacher's guide

Produced by KETC-TV, St. Louis (1977).

Available on videocassette.

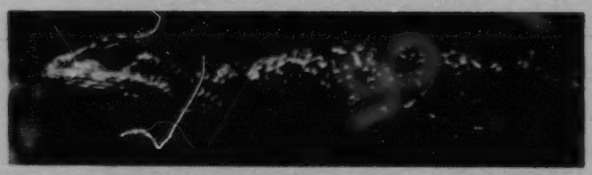
People depend on one another in many ways; this series focuses on the economic interdependence of people. It presents economic concepts in terms that young children can relate to their own lives. The lessons use a variety of techniques, puppets, skits, animation, songs and film segments to explain basic economic concepts and to stimulate classroom discussion and activities.

LESSONS*

1. **Trading** — Introduces the concept of trading, defines goods and services, and discusses barter and money as systems of exchange.
2. **Producers and Consumers** — Compares the roles of producers and consumers, defines income, and discusses the value of productive work.
3. **Choices** — Explores the concept of economic choice; examines decisions involved in spending, use of resources, and saving; and emphasizes the idea that wants and needs must be balanced against a cost factor.
4. **Prices** — Looks at the elements that determine how much goods and services cost; introduces the concept of expenses, supply and demand, and competition; and considers how prices change.
5. **How Money Works** — Shows many ways that money circulates; explains the use of checks, credit cards, and bills; and points out how taxes provide public goods and services.

*Time for programs in this series were unavailable at the time of publication

Community of Living Things



Thirty-two 20-minute black and white lessons
in five modules
Junior high
60-page teacher's guide

Produced by Hampton Roads Educational Television Association, WHRO-TV, Norfolk (1970).

By means of field trips, close-up photography, and microphotography, this series transports viewers to remote regions where they can inspect at close range more than 150 species of living organisms. Programs explore the ecology of various natural habitats, studying the environmental adaptions of organisms, the interdependence of living things, and the ways in which man has upset this balance. By tracing the energy flow within several habitats and examining the characteristics of the living things found in each, students also develop scientific skills of observation and analysis.

Larry Crum is the teacher for COMMUNITY OF LIVING THINGS and the author of its teacher's guide. Mr. Crum holds a master's degree from the College of William and Mary. Before becoming a studio teacher and producer for the Hampton Roads Television Association, he taught biology and earth science in the public schools.

LESSONS

Module 1: EXPLORING OUR ENVIRONMENT

1. **Techniques for Exploration**—Emphasizes sight, hearing, and the reasoning process. Introduces graphs as a means of making data more meaningful. (19:31)
2. **Life and Nonlife**—Compares living things with non-living materials. Introduces viruses as possible bridges between life and nonlife. (19:32)

Module 2: EXPLORING DIFFERENT ENVIRONMENTS

3. **Ecology of a Lake: Its Microorganisms**—Introduces single-celled life found in a lake—diatoms, euglena, stentors, and vorticellids. (19:30)
4. **Ecology of a Lake: In and Out of Water**—Considers organisms that exist on land or in air as well as in the lake—dragonflies, mayflies, algae, and turtles. (19:30)
5. **Ocean Bottoms**—Examines life found on ocean bottoms—sea slugs, starfish, sea urchins, and sea cucumbers. (19:29)
6. **Salt Marsh Ecology**—Examines life in a salt marsh. Looks at mud flats inhabited by fiddler crabs, mussels, sandworms, and sea anemones. (19:30)
7. **Marshy Terrain**—Explores life that bridges land and fresh water—liverworts, mosses, salamanders, and frogs. Outlines the moisture demands of marsh life. (19:32)
8. **Bogs: Carnivorous Plants**—Investigates life that has adapted to the hydrogen-deficient soil of a bog. Examines carnivorous plants. (19:33)
9. **Life within the Topsoil**—Examines life in the soil by looking at soil organisms: snails, slugs, spiders, millipedes, and earthworms. (19:30)
10. **Desert Terrain**—Contrasts dry with moist land. Presents the desert tortoise, tarantula, cacti, and various lizards. (19:30)
11. **Community Changes**—Investigates community changes, succession, and climax, as well as adaptations to change of seasons. (19:30)

Module 3: DYNAMICS OF LIVING THINGS

12. **Leaves and Photosynthesis**—Examines the way leaves adapt to capture the sun's energy. Describes briefly the process of photosynthesis. (19:31)
13. **Food Getting**—Shows how animals directly or indirectly rely on the energy captured through photosynthesis. Considers the process of ingestation. (19:30)
14. **Activity of Life**—Considers the utilization of energy in animal and plant life. Illustrates locomotion and inconspicuous energy utilization. (19:33)
15. **Inactivity of Life**—Investigates organic inactivity caused by lack of moisture. (19:32)
16. **Decomposers: Mushrooms**—Investigates the value of decomposers. Stresses mushrooms and their role in the decomposition process. (19:32)
17. **Types of Cells**—Investigates plant and animal cells and searches for differences between them. Shows that cells have specific features for specific functions. (19:30)
18. **Transportation in Living Things**—Investigates how the needs of life are sustained in the most simple and most complicated organisms. (19:31)
19. **Growth and Life Span**—Considers growth in a variety of organisms. Discusses regeneration of parts and death. (19:31)
20. **Sensitivity**—Observes plant and animal reactions to three specific stimuli—light, gravity, and touch. (19:29)
21. **Reproduction: Asexual**—Examines budding in hydra and yeast, gemmules in sponges, and spores of ferns. (19:30)
22. **Reproduction: Sexual**—Considers sexual reproduction in both plants and animals. Compares the fertilization process in plants to that in animals. (19:28)

Module 4: INTERRELATIONSHIPS

23. **Internal Parasites: Worms**—Concerns the relationship between parasitic worms and their hosts. Examines liver flukes, hookworms, and miscellaneous round and flat worms. (19:33)
24. **Saprophytes and Scavengers**—Considers the plant and animal life that cleans up the environment. Investigates various saprophytes and observes scavengers vital to various habitats. (19:30)
25. **Colonial Organisms**—Surveys a variety of colonial organisms, from colonial protozoans to bryozoans and coral, to social insects. (19:31)
26. **Eater and Eaten**—Shows how the hunter adapts to catch the prey. Stresses population balance. (19:30)

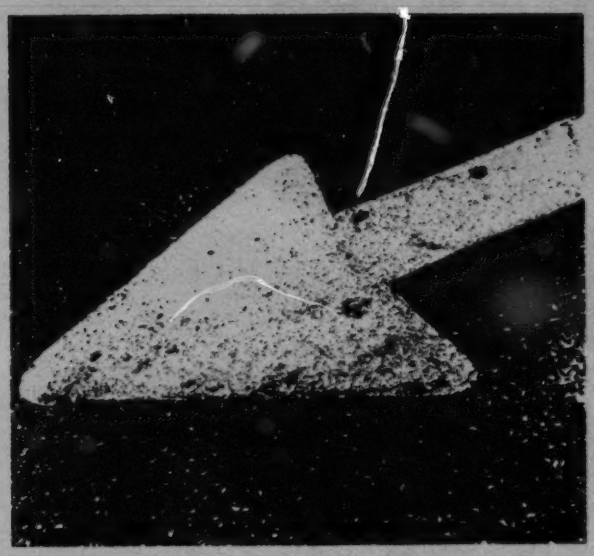
Module 5: MAN AND HIS ENVIRONMENT

27. **Water Pollution**—Shows the effects of various water pollutants on living things and investigates what can be done to alleviate the pollution problem. (19:31)
28. **Air Pollution**—Explores the pollutants in the atmosphere, and discusses why some places have a more serious air pollution problem than others. (19:32)
29. **Land Pollution: Garbage**—Examines trash garbage for most common items. Visits disposal areas and considers careful planning to alleviate future problems. (19:30)
30. **Noise Pollution**—Centers on the increasing problem of noise in the environment. Shows the damage that sound can cause. (19:32)
31. **Use and Replacement of Trees**—Visits a lumber company and papermill. Shows conservation methods of tree replacement. (19:30)
32. **Endangered Species**—Studies the various vertebrates whose existence has been or is being threatened. Discusses ways to protect wildlife habitats. (19:30)

Contemporary Poetry

Six 20-minute color lessons
Junior high, senior high
24-page teacher's guide

Produced for VITA by KCRA-TV, Sacramento (1972).



Rock music and neon lights, bumper stickers and billboards—these are some of the modern forms poets use to explore and express themselves. This series focuses on contemporary poetry and the social forces which have engendered it. The poetic devices of ambiguity, paradox, imagery, and symbolism are discussed; the functions of poetry and science are compared; and the relationship between self-expression and mental health is examined. A rock group (Redwing) tells how its songs are born, and rock music authority Ralph Gleason comments.

LESSONS

1. **A Happening**—A light, quickly-paced look at poetry, and an introduction to the concepts of ambiguity, paradox, and imagery. (18:32)
2. **Four Poets and Other Ideas**—A comparison of poetry and science, exploring the relationship between science, poetry, and human experience. (19:23)
3. **Other Ideas and Four Poets**—A discussion of the relationship between self-expression and mental health, built around the experiences of four student poets, a psychologist, and an English professor. (19:35)
4. **Rock Poetry**—A lively investigation of the poetry of contemporary rock music with Redwing, a rock group, and Ralph Gleason, music editor of the San Francisco Chronicle. (19:29)
5. **Different Means to the Same End**—A survey of contemporary poetic expression and communication—from billboards and bumper stickers to modern dance and film. (19:26)
6. **Symbols**—A survey of familiar American sights and sounds that help students relate symbolism to their own lives. (19:03)

Contract!

Fifteen 20-minute color lessons
Junior high, high school
Teacher's guide

Produced by Kentucky Educational Television (1977).

This series is presented in a game show format, but it is no ordinary game show. The contestants are not housewives or salesmen; they are young teenagers with reading problems. There is no competition for vacations or other big prizes: instead there is practice in basic reading skills. Contestants and the classroom audience answer questions that require them to practice comprehension and study skills and help them with vocabulary development.

Each program features a host, two teams, and a studio audience. The host asks questions based on reading materials covering topics of interest to the students. Reading passages introduce ideas on how to deal with real-life situations — like budgets, legal problems and family relations.

LESSONS*

1. **Fact**
2. **Fiction**
3. **Reference (Find It)**
4. **Hobbies**
5. **Sports**
6. **Driving**
7. **Accidents**
8. **Legal or Illegal**
9. **Money**
10. **Drugs & Alcohol**
11. **Health**
12. **Marriage**
13. **Family Relationships**
14. **Music**
15. **Careers**

*Times for the programs in this series were unavailable at the time of publication.

Creative Dramatics

Nine 20-minute student lessons
Nine 30-minute teacher programs
Intermediate
Teacher's guide

Produced by NEWIST, Green Bay (1977).

Available on videocassette.

This series, which emphasizes drama as a communications skill rather than an art form, is designed to improve the quality of instruction in many subject areas, especially language arts and social studies. It is a developmental, process-oriented series that helps students become more self-aware and creative through the stimulation of ideas and feelings. Each title has both a student lesson and a teacher lesson. Student lessons provide a wide variety of stimuli that involve children in creative and dramatic processes; teacher lessons concentrate on showing examples of actual classroom responses to the student lessons.

LESSONS*

1. **Relaxation and Imagination** — Introduces drama as a means of communication, begins the relaxation process, and provides several imagination-stretching experiences. Teacher program shows actual classroom demonstrations of beginning techniques. (Teacher program — 28:31; student lesson — 18:28)
2. **Pantomime — Large and Small Action** — Shows some of the actions pantomime can express and involves students in their own pantomimes. Teacher program demonstrates activities and suggests possible uses for pantomime in language arts and social studies. (Teacher program — 26:37; student lesson — 18:33)
3. **Senses — "Do You Remember?"** — Introduces a game called Do You Remember? as an aid to exploring the senses. Teacher program demonstrates sensory exercises and the use of sensory recall as a classroom tool. (Teacher program — 26:14; student lesson — 18:30)
4. **Emotions — "Do You Remember?"** — Focuses on using imagination and pantomime to recall certain sensory and emotional experiences. (Student lesson — 18:28)
5. **Improvisation** — Pulls together previously learned techniques to invent reactions to dramatic situations.
6. **Dialogue** — Concentrates on expanding the verbal dimensions of dramatic situations. (Student lesson — 18:30)
7. **Characterization** — Uses improvisation and dialogue to create character.

8&9. **Dramatization 1 and 2** — Emphasize the uses of dramatization in language arts and social studies.

(Lessons 4-9 were still in production at the time this publication went to press.)

*Times were unavailable for some programs in the series at the time of publication.

Discussing Controversial Issues

Four 20-minute color lessons
Senior high, teacher in-service
146-page teacher's handbook, coordinator handbook, student handbook

Produced by the Far West Laboratory for Educational Research and Development, San Francisco (1976).

Available on film and videocassette.

Group discussion is a central teaching technique for helping students come to grips with issues and the differences in values that underlie them. DISCUSSING CONTROVERSIAL ISSUES simultaneously trains high school teachers and their students in discussion skills and techniques. For the teacher, the goal is to become an effective discussion moderator, able to stimulate open exchange of views in the classroom without indoctrinating or imposing value judgments. For the student, the goal is to become an active discussion participant—to develop insights into his own opinions, understand the opinions expressed by others, and form a rational basis for choosing between alternatives. The series can be integrated into the regular curriculum (in English or social studies, for example) or handled as a separate unit, and is appropriate for use in both pre-service and in-service training.

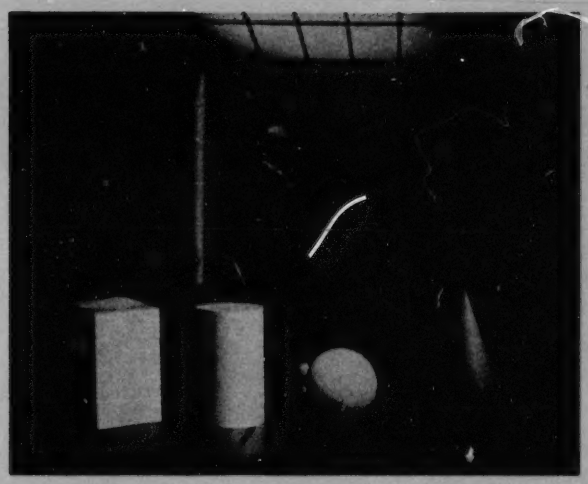
LESSONS

1. CREATING AN OPEN DISCUSSION (18:24)
2. THE IMPORTANCE OF LISTENING (18:20)
3. UNDERSTANDING DIFFERENT POINTS OF VIEW (18:55)
4. EVALUATING YOUR DISCUSSION (15:57)

The Draw Man

Thirty-two 15-minute color lessons
Intermediate, junior high
6-page combination teacher's guide and fact sheet

Produced by KOKH-TV, Oklahoma City Public Schools (1975).



A few well-placed lines on a sheet of clean white paper, and what emerges? A lumbering dinosaur, a glowering gorilla, an enormous crowd, a silly cartoon character, or any of a host of other objects, each intended to motivate children to get into the drawing act. Individual lessons demonstrate useful techniques for drawing specific kinds of things. Some viewers can't resist drawing along, while others prefer to watch first and create later. Since art is a personal activity, viewers are encouraged to experiment and to develop their own unique styles.

Paul Ringler, professional artist, provides students with clear and uncomplicated demonstrations in the art of drawing. Currently the Director of Broadcasting for the Oklahoma City Public Schools, he has extensive experience as a television art teacher, a graphics consultant, and a classroom art teacher. Mr. Ringler was the artist for "Exploring Our Universe," a nationally syndicated cartoon strip about elementary science.

LESSONS

1. **Introduction to Drawing**—The history and uses of drawing. (13:13)
2. **Building a Picture**—Conceptualizing and drawing a picture. (13:28)
3. **Birds**—Drawing birds. (13:30)
4. **Faces**—Drawing faces. (13:51)
5. **Expressions**—Shaping features to express emotion. (13:50)
6. **Halloween**—Creating atmosphere. (13:50)
7. **Figure Drawing**—Dividing the figure into simple parts. (13:30)
8. **Blips**—Creating simple action silhouettes. (13:50)
9. **Figures in Action**—Suggesting action by changing the placement of body parts. (13:50)
10. **Thanksgiving**—Developing an illustration by arranging people, settings, and costumes. (13:36)
11. **Crowds, Groups, Herds, and Flights**—Creating the illusion of many. (14:05)
12. **Deer**—Drawing deer as they stand, run, and walk. (14:13)
13. **Christmas**—Drawing or painting an outdoor Christmas scene. (13:30)
14. **Distance—Overlapping—Shadow**—Creating the illusion of depth. (14:09)
15. **The Basic Shapes**—Geometric forms used to visualize objects. (12:29)
16. **The Sphere**—A shape frequently found in common objects. (13:52)
17. **The Cylinder and the Cone**—Two shapes often hidden in common objects. (13:42)
18. **The Block and Pyramid**—Square or rectangular shapes found in familiar objects. (13:50)
19. **Cartoon Faces**—Creating funny faces and bodies in funny situations. (13:53)
20. **Cartoon Figures**—Telling funny stories with funny drawings. (13:43)
21. **Dinosaurs**—Drawing dinosaurs. (13:53)
22. **Elephants**—Drawing elephants. (13:47)
23. **The Gorilla**—Drawing a present-day "monster." (13:46)
24. **Cars**—Designing a regular car or a racer. (13:52)
25. **Cars, Three-Quarter View**—Drawing three-dimensional cars. (14:08)
26. **Horses**—Drawing horses. (13:42)
27. **Horses in Action**—Creating drama in pictures featuring horses. (14:13)
28. **Figures in Costume**—Adding period costumes to figure drawing. (14:01)
29. **Lions**—Drawing a lion's head. (13:56)
30. **Water**—Drawing water. (13:51)
31. **Shadow**—Forming shadows. (13:50)
32. **Westward Ho**—Applying many of the preceding lessons to a "Western" scene. (13:47)

Drugs: The Children Are Choosing

Seven 30-minute color lessons
Teacher in-service
40-page manual

Produced by KQED Educational Services, San Francisco (1970).

Drug experts, school administrators, psychiatrists, ministers, teachers, and students come together to present vital information about drugs and drug abuse, and to stimulate awareness and understanding of drug use today. These programs describe efforts at drug education and stress the importance of open communication with the young. Designed for parents, teachers, and other concerned adults, the course looks at all sides of the drug question, allowing each viewer to reach his own conclusions.

Dr. James Fadiman, past president of the Transpersonal Institute, Alternative University Model, Palo Alto, California, has worked as a consultant, lecturer, writer, and teacher. He has been assistant editor of the *Journal of Transpersonal Psychology* and associate editor of the *Journal of Humanistic Psychology*. Dr. Fadiman received his doctorate in psychology from Stanford.

LESSONS

1. **Understanding the Issues**—Presents a variety of expert opinions and student viewpoints about today's drug problem. Examines accessibility of drugs, and legal implications of possession and use. (28:48)
2. **The History and Allure of Drugs**—Investigates the value placed on drugs by primitive and modern civilizations. Defines selected drugs. (24:07)
3. **Drugs and Drug Effects**—Discusses the misuse of glue, marijuana, barbituates and alcohol. Describes drug classifications and the physiological, psychological, and social factors of drug use. (28:28)
4. **Cultural Factors in Drug Use**—Simulates situations in which children sniff glue, smoke, see adults take drugs, and experiment with marijuana. Comments on the effectiveness of drug education for children. (24:55)
5. **The Need for a Dialog**—A group of students, a psychiatrist, a minister, two school administrators, and several teachers discuss drug abuse. (30:00)
6. **What Some Are Doing**—Describes the efforts of two school districts to develop drug education programs. Emphasizes the need for community commitment. (28:22)
7. **Toward More Effective Communication**—Stresses that communication between social, civic, and educational groups and young people is the priority point in the issue of drug abuse. (29:25)

Economics and the Public Interest
(Economics I)

Fifteen 30-minute black and white lessons
Post-secondary
8-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

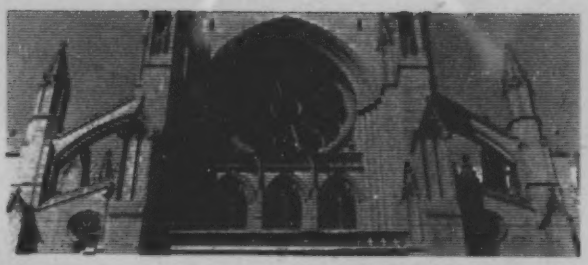
The course introduces economic analysis and its application to the major economic issues confronting The United States and the world. The purpose is to give students tools for making informed judgments about such vital matters as unemployment, inflation, competition, and growth.

The lectures have been prepared and presented by Dr. Richard T. Gill, author of *Economics: a Text with Readings* (Pacific Palisades: Goodyear Publishing Co., 1973), and member of the New York Opera Company; formerly Lecturer on Economics, Harvard University.

LESSONS

1. **The Economic Problem**—Introduces the study of Economics, describes economic problems in terms of the scarcity of resources, and illustrates uses of a production-possibility curve. (29:02)
2. **The Market Economy**—Describes the workings of a market economy, and explains the relationship between demand and supply curves. (28:45)
3. **Marxist Economics and the Planned Economy**—Reviews Marxist criticism of the market economy, and describes the planned economy in Russia and China today, noting its advantages and its inefficiencies. (28:45)
4. **The Mixed Economy: Public Sector**—Investigates the role of government in the mixed economy of the United States. (28:30)
5. **The Mixed Economy: Private Sector**—Studies the roles of oligoplistic industries and organized labor in the American economy, and describes how anti-trust laws and labor legislation help protect the public interest. (29:19)
6. **Unemployment and the Keynesian Revolution** —Discusses the general problem of how the aggregate level of economic activity in an economy is determined in the short run, noting in particular unemployment. (28:47)
7. **The Concept of GNP**—Defines the Gross National Product and considers each of its components: Consumption, Investment, and Government Expenditure. (28:45)
8. **Theory of National Income Determination**—Explains and illustrates a theory for determining the national income. (28:56)
9. **Fiscal Policy**—Describes how various combinations of tax and governmental expenditure policies make up a country's "fiscal policy." (28:55)
10. **The National Debt**—Explores the relationship of the indebtedness of the federal government to the American economy as a whole. (28:53)
11. **Money and Monetary Policy**—Considers how the actions of government in affecting the supply of money and the conditions of borrowing in the economy influence the short run level of national income. (28:50)
12. **Inflation**—Discusses causes and effects of moderate inflation and suggests employing all useful measures—monetary policy, fiscal policy, and wage-price guide posts—when inflation threatens. (28:55)
13. **International Trade**—Investigates how the operation of monetary and fiscal policies becomes complicated when balance of payments regarding imports and exports must be taken into account. (28:55)
14. **Economic Growth**—Considers factors contributing to long-run expansion of national income: population growth, capital accumulation, and technical change. (29:00)
15. **Underdeveloped Countries**—Studies the special problems faced by underdeveloped countries in achieving an industrial revolution. (28:55)

En Français



Twenty-six 15-minute color lessons
Senior high, post-secondary

Teaching package—including teacher's manual, student manual, supplementary reading material, filmstrip, student records and audio tapes

Produced by the Ministry of Foreign Affairs, France (1970).

Produced and filmed in France, this series is designed for college and high school students with one to one-and-a-half years of French instruction, and for those reviewing their knowledge of French. Using authentic French costumes and decor, the course presents a series of humorous vignettes depicting contemporary middle-class life and values, that help viewers develop a working knowledge of conversational French. Speech constructions and vocabulary taught in the series were chosen as a result of a study commissioned by France's Ministry of National Education to determine essential language skills needed by the average foreigner.

LESSON FORMAT: Each lesson consists of four parts: two short sketches, an interlude between the sketches and a concluding dialog. The first sketch, usually a situation comedy in a bourgeois setting, introduces the vocabulary and grammatical constructions emphasized in the lesson. An interlude follows, in which a school boy describes a picture using the grammar and vocabulary introduced in the first sketch. The second sketch repeats the vocabulary and constructions in a new context. The concluding dialog is a review.

LESSONS

Part One: **ESSENTIAL ELEMENTS**

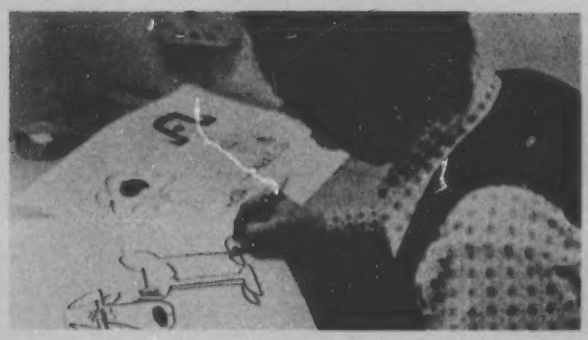
1. **The Bridge**—Tours a countryside bridge and the bridge at Tancarville, Europe's largest suspension bridge. (13:00)
2. **Black and White**—Features a typical market place and the studio of a great fashion designer. (14:01)
3. **Rosé**—Takes place in a small country restaurant and in an elegant restaurant along the Seine. (12:45)
4. **The Head and the Legs**—Contrasts physical education at a small country school and at the Ecole Supérieure d'Education Physique at Châtenay-Malabry. (13:00)
5. **Women Do Know About Mechanics**—Involves a housewife whose car and vacuum cleaner break down and a woman engineer at the Center of Nuclear Studies at Saday. (14:12)
6. **Smile! Don't Move!**—Shows a photographer at a village fair and a cameraman shooting a historical film at the fifteenth century castle at Pierrefonds. (13:51)
7. **Who Broke It?**—Features a glassmaker's studio in which a country priest's broken stained glass window is fixed. (12:43)
8. **For Rent**—Tours a country farm and a new skyscraper apartment in Paris. (13:26)
9. **Here Is Some Fruit**—Reveals the secret of French jam and shows how orchards are cared for. (13:01)
10. **By Car**—Contrasts an antique car enthusiast with a test driver (13:27)
11. **By Plane**—Contrasts a small private plane and a commercial airliner at Orly Airport in Paris. (12:12)
12. **Writing and Speaking**—Involves two feuding neighbors and a dramatic sequence at the French Space Telecommunications Center at Pleumeur-Bodou in Brittany. (14:01)
13. **Good Weather Follows the Rain**—Contrasts a garden on a small country estate with the magnificent gardens of Versailles. (13:23)

Part Two: **TEMPORAL RELATIONSHIPS, LOGICAL RELATIONSHIPS**

14. **Animals**—Concerns a family home which is becoming a menagerie and the park of the Chateau de Thoiry. (13:39)
15. **Antiques**—Features the Vaison-la-Romaine, an old Roman town and an antique shop near the Louvre. (14:47)
16. **A Little Boat**—Contrasts a pond on the Ile-de-France and a school near Grenoble where the world's most unnavigable waterways are reconstructed in miniature. (14:01)
17. **Music**—Shows a traditional dance in a country town and tours a recording studio at the Office de Radio et Télévision Française. (16:12)
18. **Masculine and Feminine**—Presents two humorous sketches involving the opposite sexes. (14:44)
19. **Telescopes**—Visits a hilltop overlooking the countryside and the Observatory of Saint-Michel-de-Provence. (15:27)
20. **Practice Makes Perfect**—Concerns an engineer in the Allevard steel works and a village blacksmith who has run out of horses to shoe. (13:16)
21. **Bowling and Balls**—Shows a game of "boules," and a golf game near Paris. (14:36)
22. **Perfumes**—Lead a young couple to the altar and provide an anniversary present. (14:15)
23. **Dividing the Water**—Takes place in the upper valleys of Comtat Veniassin and the pumping station at Pichegru. (14:55)
24. **Notice to the Public**—Occurs on Bastille Day. (14:56)
25. **On the Roof**—Involves a chiuf electrician and a chimney repairman. (15:40)
26. **Let's Dance**—Features a folklore dance company and a rehearsal at the Maison de Culture at Grenoble. (13:50)

Explorers Unlimited

Thirty-three 15-minute color lessons
Primary, Intermediate
36-page teacher's guide
Produced by WVIZ-TV, Cleveland (1971).



There is nothing like a field trip to develop new concepts and broaden vocabulary. In this series the camera transports youngsters to seldom available or even inaccessible locales, where they can do such things as explore the inner workings of a skyscraper, tour the Cuyahoga River on a fireboat, watch batting practice and other preparations for a major league baseball game, wander through Death Valley, or see the step-by-step production of a magazine or movie. The programs are intended to enrich, but not to replace, personal experience.

Ruth Kotila, the television teacher, has been teacher-producer of several field trip series for WVIZ-TV, Cleveland, including OTHER FAMILIES, OTHER FRIENDS, a companion series to EXPLORERS UNLIMITED. Ms. Kotila is a graduate of Allegheny College and has taught elementary grades in the Bedford, Ohio, city schools.

LESSONS

1. **Skyscraper**—Explores the inside operation of a skyscraper in Cleveland. (14:31)
2. **Port of Call**—Summarizes the role of the Great Lakes as a transportation link. (14:26)
3. **City River**—Tours a city river aboard a fireboat. (14:15)
4. **Maize in Metal**—Visits a food canning company to show the complexity of the food industry. (14:21)
5. **Arch of Coal**—Observes coal handling at the Penn Central docks in Ashtabula, Ohio. (14:18)
6. **A Phoenix Rises**—Demonstrates the value of the scrap metal industry as it conserves and reclaims waste material. (14:43)
7. **Salt of the Earth**—Visits a salt mine in Cleveland to examine methods of extracting salt. (14:37)
8. **Community Hospital**—Offers a behind-the-scenes look at a community hospital. (14:25)
9. **Frontier Shoemaker**—Watches an experienced shoemaker as he demonstrates how shoes were made by hand in colonial times. (14:29)
10. **From Sand to Glass**—Visits a glass factory to see how raw materials are transformed into glassware. (14:34)
11. **In the Heart of the Rock**—Travels to Zane Caverns to learn how a cavern is formed by natural water action. (14:45)
12. **Basic Oxygen Furnace**—Examines a basic oxygen furnace used in making steel. (14:32)
13. **Cars, Cars, Cars**—Visits a Chevrolet plant to demonstrate the importance of the assembly line to modern industry. (14:30)
14. **Sugarbush**—Goes to a sugarbush to observe the old-fashioned method of making maple syrup. (14:30)
15. **A Fish Tale**—Visits a fish hatchery to see how fish are raised for stocking lakes and streams. (14:30)
16. **Play Ball**—Observes preparations for a major league baseball game at Cleveland Stadium. (14:25)
17. **A Whale of a Friend**—Looks on while trainers work with dolphins and with the whale Shamu at Sea World of Ohio. (14:19)
18. **Sounding Brass**—Observes the assembly of a trombone at the King Instrument Company. (14:21)
19. **Big Muskie**—Visits a coal strip mine in southern Ohio where the largest dragline in the world uncovers the coal. (14:19)
20. **Sugar Campaign**—Inspects the complex operation of producing sugar from sugar beets. (14:29)
21. **In a Jam**—Watches how jams and jellies are produced at the Smuckers plant in Orrville, Ohio (14:33)
22. **The Animal Crackers of Roger Bollen**—Demonstrates the art of creating, writing, and drawing a syndicated cartoon. (14:31)
23. **Moving the Earth**—Demonstrates three steps in manufacturing earth-moving equipment—fabricating, machining, and assembly. (14:29)
24. **Candy and Gum**—Visits a plant in Holland, Michigan, to find out how gum and candy are made. (14:33)
25. **Papermill**—Journeys to the Hammermill Company to learn how paper is made from pulpwood. (14:30)
26. **Publish and Print**—Shows the complex process of preparing and printing a magazine. (14:30)
27. **Polyester Yarn**—Visits an American Cyanamid plant to learn how polyester yarn is made. (14:30)
28. **Hydrasposal/Fibreclaim**—Studies the methods of waste disposal and recycling employed at a reclamation plant in Ohio. (14:30)
29. **A Hollywood Wax Museum**—Visits a Hollywood wax museum to watch a wax sculptor at work. (14:26)
30. **Movie Factory**—Tours Universal City Studio to learn about some of the illusions used in making movies. (14:30)
31. **Intelligence Park**—Travels to the San Diego Zoo to observe the business of zoo-keeping. (14:26)
32. **Wild Animal Park**—Visits the San Diego Wild Animal Park to learn about an alternative type of animal keeping. (14:27)
33. **Death Valley**—Focuses on some of the natural and historical features of Death Valley. (14:26)

Expository English I
(English I)

Fifteen 30-minute black and white lessons
Post-secondary
28-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University, Produced by WGBH-TV, Boston (1967).

This series is designed to strengthen the student's writing abilities and increase his reading comprehension. The elements of formal prose and the structural, stylistic, and thematic devices of selected essays and fictional pieces are discussed.

The lectures have been prepared and presented by Professor Shaun O'Connell, Associate Professor of English, University of Massachusetts at Boston.

LESSONS

1. **Patterns of Order**—Introduces the elements of order in formal composition: author, subject, and audience. (28:56)
2. **The Paragraph: Essentials**—Discusses the topic sentence, supporting material, and transitional elements—components of well-formed paragraphs. (28:47)
3. **The Paragraph: Unity, Coherence, Emphasis**—Considers the paragraph as a relationship of sentences which all bear on a central point. (28:47)
4. **The Paragraph and the Whole Essay**—Examines the development of the paragraph as a reflection of the development of the essay. (28:55)
5. **The Sentence I**—Introduces basic sentence elements—subject, predicate, complement; illustrates how phrases, clauses, and sentences are constructed from them. (28:55)
6. **The Sentence II**—Considers how elements within sentences are modified to create precise statements. (28:22)
7. **Diction I**—Defines "diction" and illustrates how the writer controls his subject through choice and pattern of words. (28:55)
8. **Diction II**—Discusses figurative language and how the writer uses it to delineate his subject and extend the significance of his statement. (28:56)
9. **Diction III**—Examines narrative "voice" and explores the particular characteristics of irony, parody, and satire. (28:54)
10. **Interview With a Professional Writer, the Essayist I**—Interviews Dan Wakefield, contemporary American prose writer and author of *Between the Lines*. (28:35)
11. **Writing from Personal Experience**—Illustrates by examples that good writing is based on personal experience. (28:35)
12. **Argument**—Contrasts arguments that are sound and convincing with arguments that are weakened by pseudo-logical tactics. (28:55)
13. **Analysis**—Considers the esthetic, historical, and biographical approaches to literary analysis, noting that the purpose of analyzing a work is to better understand and evaluate it. (28:55)
14. **Interview With a Professional Writer, the Biographer II**—Interviews Justin Kaplan, author of *Mr. Clemens and Mark Twain*, a psychological portrait and a social analysis of the Gilded Age. (28:59)
15. **The Essay, "Notes From a Native Son" by James Baldwin**—Cites Baldwin's essay as a near perfect blending of personal experience, diction, analysis, and argument. (28:55)

Expository English II
(English II)

Fifteen 30-minute black and white lessons
Post-secondary
57-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

A continuation of EXPOSITORY ENGLISH I, this series makes more demanding writing assignments and analyzes more sophisticated problems in writing style. Representative works in the novel, the essay, drama, and poetry are discussed.

These lectures have been prepared and presented by Professor Shaun O'Connell, Associate Professor of English, University of Massachusetts at Boston.

LESSONS

1. **The Journal**—Discusses the kinds of entries noted journal-keepers have recorded in their journals. Includes selections from Thoreau, Camus, Katherine Mansfield, and F. Scott Fitzgerald. (28:55)
2. **The Fact or the Fiction in Fact**—Examines the success of Truman Capote's *In Cold Blood* as a "non-fiction novel," a form that brings together factual material and the skill of the novelist. (28:55)
3. **The Fact in Fiction**—Explores how the author's vision influences the subject by comparing the treatment of the same subject matter in Flannery O'Conner's "A Good Man Is Hard To Find," and Truman Capote's *In Cold Blood*. (28:57)
4. **The Confessional Essay**—Examines how the personal experiences expressed by an author become relevant to his audience. Considers three connected essays by F. Scott Fitzgerald—"The Crack-Up," "Pasting It Together," and "Handle With Care." (28:55)
5. **The Autobiographical Essay**—Uses the example of George Orwell's "Such, Such Were the Joys . . . ." to show how the autobiographical essay extends the scope and significance of the confessional essay. (28:42)
6. **The Political Essay**—Considers how one author, George Orwell, confronted the men, ideas, and institutions of power in his age, in two political essays. "How To Shoot an Elephant," and "Politics and the English Language." (28:56)
7. **The Essayist/Novelist**—Interviews author Brock Brower concerning his views about contemporary expression, its problems, and its possibilities. (28:55)
8. **The Writer's World**—Explores "description"—the translation of scenes, characters, ideas, and feelings into words. Examines two works by Ernest Hemingway, "By-Line: Ernest Hemingway," and *A Movable Feast*. (28:20)
9. **The Historical Novel**—Discusses the historical novel as an attempt to reconstruct life in a previous era. Uses as an example William Styron's *The Confessions of Nat Turner*. (28:55)
10. **Academic Prose**—Interviews writer Michael Zuckerman about the stylistic requirements of academic writing, and about his own successes in academic prose. (28:53)
11. **Prose Styles**—Concerns the establishment and maintenance of the writer's "voice." Explores the range of "voices" contending for attention and emulation in prose today. (28:16)
12. **Poetry and Prose**—Presents contemporary poet Anne Halley reading and discussing two of her poems, "My Two Grandfathers," and "Dear God, the Day Is Grey." (28:55)
13. **The Editor**—Interviews Jules Crametzky, professor, writer, and editor for *The Massachusetts Review* about his experiences in each of these roles. (28:56)
14. **The Review**—Discusses the work of the reviewer. Cites many examples, among them several film reviews written by James Agee. (28:52)
15. **The Engaged Writer**—Discusses James Agee's *Let Us Now Praise Famous Men* as a model of successful non-fictional prose writing in which the author's total engagement is evident. (28:55)

First Films on Science

Ten 15-minute color lessons
Primary, intermediate
24-page teacher's guide

Produced by the Mississippi Authority for Educational Television (1975).

Small children bubble with curiosity and questions about the world around them. Familiar objects and common experiences are used to explore and explain basic concepts of physical science in this series, which is designed to introduce youngsters to the general principles of matter and energy. The programs make extensive use of models, demonstrations, macrophotography, and time-lapse photography to make these sometimes difficult concepts comprehensible and fascinating.

LESSONS

1. **Solar Energy**—Demonstrates man's dependence on the sun. Shows how the sun's light and heat provide energy for survival and growth. (13:30)
2. **Energy and Motion**—Explains that energy is present when any object moves. Emphasizes that energy takes many forms. (13:03)
3. **Changes in Classes of Energy**—Explores the difference between potential and kinetic energy. Points out that energy sometimes changes from one class to the other. (13:53)
4. **Changes in Kinds of Energy**—Focuses on relationships between various forms of energy. Shows that they often change from one kind to another. (13:12)
5. **Matter**—Discusses the three states of matter. Illustrates that all matter has weight, takes up space, and is composed of molecules. (11:46)
6. **Matter Is Made Of . . .**—Considers the properties of molecules. Shows how, with different arrangements of molecules, matter takes different forms. (11:30)
7. **Mass and Volume**—Introduces mass and volume. Demonstrates that objects can have the same volume but different masses and the same mass but different volumes. (12:17)
8. **Physical Changes in Matter**—Shows that matter changes form according to the forces acting on it. Traces water from solid to liquid to gas. (14:14)
9. **Chemical Changes in Matter**—Explains the process of chemical change that occurs when one kind of matter is changed into another. (13:37)
10. **Measurement**—Presents measurement as a process used every day. Demonstrates things that need to be measured and the instruments used to measure them. (13:30)

Getting the Word

Thirty-one 20-minute color lessons
Junior high, senior high
369-page book, including teacher's manual, student guide, student worksheets, and student source book

Produced by South Carolina Educational Television (1974).

Some students miss the message because of faulty word-attack skills. Using a reading club format and contemporary themes to engage and sustain interest, these programs approach the problem sympathetically and eclectically, employing a combination of phonic, linguistic, and language-experience approaches. While the development of reading skills is one goal of the series, the programs also seek to enhance each viewer's individuality, self-confidence, and feeling of self-worth. Winner of Ohio State Award, 1973.

Margaret Lippitt Rorison, creator of and teacher for GETTING THE WORD, is on the staff of the South Carolina State Department of Education's Office of ITV. She has been an elementary and corrective reading teacher in New York City and a member of the staff of the School of Education Reading Clinic at the University of South Carolina. Ms. Rorison holds a master's degree from Teachers College, Columbia University, and is completing a doctorate at the University of South Carolina.

LESSONS

Unit I: **Single Consonant Sounds**

1. Review of Capital Letters (18:42)
2. Using the Sound of Letters (17:45)
3. Using the Sense of the Sentence (15:12)
4. Using the Spelling Pattern of the Word (19:20)
5. Combining and Advancing in the Skills Presented (18:03)
6. Using the Shape of the Word (19:21)
7. Initial and Final Letter Substitution (18:44)

Unit II: **Consonant Blends and Digraphs, Short Sound of the Vowels**

8. Using a Source; Review of Letter Sounds: "Jet-Stop" (18:01)
9. Applying "Ways To Get Words" to the Reading of a Story (17:12)
10. Employing the Short Vowel Sounds of A, I, O (19:38)
11. The *R*-Blends: "Brooms and Crutches"; Using the Structure of the Word (17:39)
12. *L*-Blends: "Climbing the Cliff" (19:50)
13. *S*-Blends: "Stars and Stripes in Scouting" (19:47)
14. Employing the Consonant Digraphs CH, SH, WH, TH (18:52)

Unit III: **Long Sound of the Vowels, Beginning Syllabication**

15. The Double Role of *Y* (19:32)
16. Using Spelling Pattern and Rhythm as Clues (short vowel I-I) (19:18)
17. Some *R*-Controlled Vowel Sounds (20:04)
18. The Addition of Final, Silent E Changes the Medial Vowel Sound of a Word (19:50)
19. When To Double a Final Consonant Before an Ending (19:46)
20. Visual Clues That Help To Determine Whether a Vowel Sound Will Be Long or Short (Emphasizing: Vowel Pairs) (20:03)
21. *C* Before *E, I, Y* Usually Says "S;" *G* Before *E, I, Y* Usually Says "J" (19:57)

Unit IV: **Syllabication, Accent, Vowel Combinations and Diphthongs, Dictionary Aids**

22. Review: Six Word-Attack Skills, Consonant Combinations, Short and Long Vowel Sounds, *R*-Influenced Vowel Sounds, Beginning Syllabication (19:20)
23. Certain Times When *O* and *I* Have the Long Sound (18:55)
24. Two Sounds of OO; Ways To Break Words Into Syllables (19:45)
25. Further Ways To Break Words into Syllables, Accenting Two-Syllable Words (18:30)
26. Accented and Unaccented Syllables, the Schwa (ə), Contractions, Ways To Spell the Sound "ô" (19:56)
27. Silent Letters; Different Ways To Spell the Sounds "ô," "SH" in the Medial Position of Words, "N" (19:50)
28. Dictionary Aids: Chart of Initial Consonant Sounds; Guide Words; Entry Words; Word Meaning (17:19)
29. Diphthongs OI, OY; OU, OW; PH=F Dictionary Aids: Pronunciation Key; Phonetic Respelling (19:30)
30. Forming Plurals; Forming a Separate Syllable with -ED (19:50)
31. The Sounds of IE, EI; Syllabication Review; Careers Club (19:45)

Hands On

Grade I
Ten 15-minute color lessons
Primary
16-page teacher's guide

Grade II
Twelve 15-minute color lessons
Primary
20-page teacher's guide

Grade III
Fourteen 15-minute color lessons
Primary
22-page teacher's guide

Grade IV
Twelve 15-minute color lessons
Primary
23-page Teacher's guide

Grade V
Twelve 15-minute color lessons
Primary
Teacher's guide

Produced by WHRO-TV with funds provided by the Commonwealth of Virginia (1975).

This series, based on the idea that "to do science is to learn science," provides an introduction at the elementary level to process skills — observing, measuring, classifying, inferring/predicting, and experimenting. The lessons illustrate diverse applications of each skill, and the activities set out in the curriculum guide for each level form a frame of reference within which students can develop the skills for themselves. The process skills of observation, measurement, and classification are the areas of concentration in Levels One and Two. Levels Three and Four continue to develop these skills but also include lessons in hypothesis-building and inferrence. Level Five advances the same skills and adds experimentation. Because many of these lessons can be integrated into language arts or mathematics programs, suggestions for activities that fall into these two areas are included in the curriculum guides.

Teacher-producer for Grades One and Two is Patricia Brooks, an elementary teacher for eight years. Teacher-producer for Grades Three and Four is Virginia Varner, teacher in the Norfolk schools for five years. Larry Crum and Andrea Lacey are teacher-narrators for Grade Five.

LESSONS*

GRADE ONE: MARBLES, MACARONI, ETC.

Unit 1: Observing

1. **Size, Shape, Color, Texture** (14:40)
2. **Movement** (14:07)
3. **Recording Observations** (14:29)
4. **Observing and Classifying** (14:43)

Unit 2: Measuring

5. **Equal Length** (14:18)
6. **Shortest—Longest** (14:32)
7. **Greatest—Least** (14:29)
8. **Heaviest—Lightest** (14:32)

Unit 3: Classifying

9. **Animals** (14:10)
10. **Seeds and Nonseeds** (14:10)

GRADE TWO: LOLLIPOPS, LOOPS, ETC.

Unit 1: Observing

1. **Observing Spatial Arrangements** (14:24)
2. **Light and Shadows** (14:19)
3. **Change** (14:30)
4. **Relative Position** (14:25)

Unit 2: Measuring

5. **Measuring Change** (14:30)
6. **Measuring Time** (14:30)
7. **Measuring Area** (14:30)
8. **Following Recipes** (14:30)

Unit 3: Classifying

9. **Solids—Liquids** (14:22)
10. **Sink—Float** (14:22)
11. **Sets—Empty Sets** (14:22)
12. **Living—Nonliving** (14:36)

*Times were unavailable for some programs in this series at the time of publication.

44

Hands On (contd.)

GRADE THREE: METERSTICKS, MEALWORMS, ETC.

Unit 1: Observing

1. **Observing Sounds** (14:22)
2. **Observing Change** (14:39)
3. **Observing Motion** (14:20)
4. **Recording Observations** (15:04)

Unit 2: Measuring

5. **Measuring Weight** (14:25)
6. **Measuring Volume** (14:54)
7. **Recording and Measuring Lengths** (14:47)
8. **Constructing Bar Graphs** (14:30)

Unit 3: Classifying

9. **Classifying Objects** (14:30)
10. **Classifying Sand Mixtures** (14:35)
11. **Classifying Systems** (14:25)

Unit 4: Inferring–Predicting

12. **Predicting Shadow Lengths** (14:32)
13. **Predicting Weather** (14:32)
14. **Predicting Plant Growth** (14:27)

GRADE FOUR: CARS, CARTOONS, ETC.

Unit 1: Observing

1. **Observing Camouflage** (14:30)
2. **Observing Animal Feeding Behavior** (14:23)
3. **Observing Drips and Drops** (14:25)

Unit 2: Measuring

4. **Measuring Speed** (14:25)
5. **Making Maps** (14:27)
6. **Interpreting Maps** (14:27)
7. **Making Line Graphs** (14:21)

Unit 3: Classifying

8. **Classifying Insects** (14:25)
9. **Classifying Cars**

Unit 4: Inferring/Predicting

10. **Predicting Tracks**
11. **Predicting Electric Circuits**
12. **Predicting Here, There, and Everywhere** (14:48)

GRADE FIVE: OUR ENVIRONMENT

1. **Water: What Happens to It**
2. **Earth: Is It All the Same**
3. **Air: When Is It Good**
4. **Plant Population**
5. **Animal Population**
6. **Food Chains**
7. **Animal Evidence**
8. **Animal Communication**
9. **Animal Migration**
10. **A Look at a Community: The Dismal Swamp**
11. **Communities Under Water**
12. **Another Kind of Community: The City**

The Heart of Teaching

Five 15-minute color programs and one 30-minute color program
Teacher in-service
8-page viewer's guide
27-page discussion leader's guide
Applications Handbook
Video training tape

Developed through the resources of a consortium of fourteen agencies, organized and managed by AIT. Produced under the supervision of AIT at the facilities of the Educational Film Center (formerly NVETA), North Springfield, Virginia; and the facilities of KETC-TV, St. Louis.
Post-production service in St. Louis was provided by D.H. Editorial Services (1976).

Available on film and videocassette

For related materials, see pages 107-110

THE HEART OF TEACHING is an in-service series designed to meet a specific need identified by teachers: to understand themselves and their own emotional responses to the daily experiences of their professional lives. The open-ended dramatizations focus on teacher reaction to the isolation and loneliness of teaching, professional change, the frustrations of teaching, individual differences in the classroom, and difficulties of communication with parents and others. THE HEART OF TEACHING encourages teachers to think about themselves as persons and professionals, and to develop or improve the skills they need to cope with their own concerns.

PROGRAMS

1. **The Parent Crunch (Communication)** — Fourth-grader Sandy McNaughton gets A's on his homework and C's when he does the same work in class. The A's confuse his teacher, Margaret Paslowski, and the C's confuse his father. The futile efforts of father and teacher to convince each other that each has Sandy's best interest at heart illustrate one of the most common stress-producing events in the lives of teachers — the encounter with an angry parent. (14:26)
2. **An Eye for Change (Professional Growth)** — When the principal at Trudy Bowman's school institutes a project for professional development, she agrees to video-tape her American History class for faculty evaluation. Intellectually she supports what she is doing, but during the actual taping, Trudy becomes uncomfortably aware of her unseen jury of peers. The program focuses on the mixed feelings, worries, and personal risks involved in a teacher's professional growth. (15:15)
3. **Last Hour Clash (Frustration)** — Whit Jefferson can't understand why Sidney constantly disrupts his class, and Sidney can't understand why the teacher always picks on him. This program uses humor and exaggeration to bring out the best and worst of a concerned but bungling teacher, his "helping" friend, and the student, Sidney. (14:27)
4. **Every One Is Something Else (Individual Differences)** — This semi-documentary program shows an elementary class of fifty students and an infinite number of individual differences—cultural, racial, intellectual, creative. The various scenes demonstrate how these differences complicate the teacher's work, but at the same time make teaching the very special kind of creative profession that it is. (14:10)
5. **A Faculty Feeling (Loneliness)** — In this program, a faculty meeting to discuss the exam schedule suddenly turns into a discussion — sometimes vehement, sometimes humorous — of whether teachers are a collection of isolated individuals under one roof or a unified faculty whose members work together. (14:22)
6. **Teachers' Meeting (Loneliness)** — This is a 30-minute version of "A Faculty Feeling." (29:11)

How Can I Tell You?

Fifteen 15-minute color lessons
Primary, intermediate
28-page teacher's guide

Produced for Massachusettes Educational Television (21 Inch Classroom) by WGBH-TV, Boston (1971).

Thoughts and feelings can be expressed in many different ways, both verbal and nonverbal. Professional storytellers, mimes and improvisers, children, and music come together in this series intended to stimulate viewers to "tell it" through creative writing or dramatics, gestures or body language, facial expression, art, music, or group discussion. Use of the imagination and development of sensory perception are other goals of the series, which offers students lively models of what they themselves might do with their own talents and creativity.

LESSONS

1. **Sam the Giant**—Presents the story of Sam, a giant of the South Seas, who is taken to the North Pole. (14:13)
2. **Brothers and Sisters**—Shows children drawing stories that express their feelings toward a brother or sister. (13:20)
3. **Sarah**—Tells the story of a girl with a big question, who decides one winter day to find the answer. (13:11)
4. **Bonaparte**—Presents the story of a car named Bonaparte, who moves to the country to escape the problems of city life. (12:43)
5. **Toomph**—Tells the story of Philip and his 3,000 pound dog, Toomph, who take a boat ride to a mysterious island. (14:09)
6. **The Tribal Players with Teachers**—Demonstrates general warm-up exercise games, and simple improvisations. (14:08)
7. **The Tribal Players: Sight**—Shows the creation of real and imaginary visual stimuli. (14:22)
8. **The Tribal Players: Sound**—Presents a performance that consists of a warm-up exercise game and the reenactment of a story. (13:41)
9. **The Tribal Players: Smell, Taste, and Touch**—Demonstrates by body expression what the players smell, taste, and feel as they pretend to eat different foods. (13:58)
10. **The Proposition: Make-Believe**—Introduces a group that specializes in improvisation as they pretend to be animals and toys. (14:10)
11. **The Proposition: Pantomime 1**—Demonstrates how people can express themselves with their bodies. (14:42)
12. **The Proposition: Pantomime 2**—Shows how one can tell what a person is feeling by just looking at his face. (12:01)
13. **The Proposition: Music Festival**—Presents improvised songs for a musical festival. (12:37)
14. **The Proposition: Story Telling**—Presents an improvised story about a hero and a magic place. (12:39)
15. **The Proposition: Fairy Tale Opera**—Presents an improvised opera on the theme of "Rumplestiltskin." (14:02)

If You Live in a City, Where Do You Live

Five 30-minute color lessons
Intermediate
27-page teacher's guide
30-minute teacher program
Produced by WGBH-TV, Boston (1970).

The quality of life in modern cities is the central topic of this series. Documentary films and follow-up activities give students a balanced and positive look at what city life can offer, while stimulating thought and discussion on subjects such as urban conservation, city-planning to meet diverse individual needs, and methods of effecting change. Through active participation, students come to appreciate the complexity of urban issues and the difficulty of making wise choices.

LESSONS

Teacher Orientation Program—Mike Wallace introduces the series, explains the curriculum unit, and presents the program objectives. (29:29)

1. **On Winthrop Street** (Exterior Environment)—The games children play in alleys, yards, and on sidewalks help to reveal the nature of the outdoor urban environment and what children think about it. (28:39)
2. **Insideplaces, Insidethings** (Interior Environment)—A number of city homes are visited to explore how children use interior spaces for games and other play activities. (28:54)
3. **In Time** (The Changing Environment)—Environmental change is illustrated as a group of children and an urban archeologist explore a derelict house, and an ex-boxer talks about the changing site and function of Madison Square Garden. (27:48)
4. **People Watching** (Designing a Place for Needs)—Individuals try to satisfy diverse needs within the urban environment—a man exercises in a playground, and a high-rise dweller cultivates a garden. (29:25)
5. **Among Priorities** (Making Choices)—A group of children investigate the question of land development when a vacant lot they use as an adventureland is marked as a construction site. (28:59)

Images & Things

Thirty 20-minute color lessons
Intermediate, junior high
138-page teacher's guide

Three 30-minute teacher programs
Learning Resources Kit

Developed through the resources of a consortium of twenty-six agencies, organized and managed by AIT. Produced for AIT by the Kentucky Authority for ETV, Lexington; KETC-TV St. Louis; and WNVT, Annandale (1971).

Available for purchase on film and videocassette.

For related materials, see pages 107-110

This series focuses on the arts as they speak about life through a variety of themes—the land, the sea, people at work, people celebrating, events in urban, suburban, and rural life, the images and sounds of nature, the ways man forms and reforms objects, his rituals, his dreams, his dress, the things he builds, and the things he envisions. The programs lead, through the experience of art, to a better understanding of the self, of other people, of the environment, and of other times and cultures. Winner of CINE Golden Eagle Award, 1972.

Dr. Alice M. Schwartz, Professor of Art Education, Pennsylvania State University, is the principal consultant and author of the teacher's guide. Other consultants include: Dr. John W. Cataldo, Professor of Art and Dean of the Massachusetts College of Art; Dr. Edmund Burke Feldman, Professor of Art, University of Georgia; Jerry Tollifson, Supervisor of Art Education, Ohio Department of Education.

LESSONS

Module Blue

101. Sea Images — Natural and artistic images related to the sea and to man's fascination with and reliance on it. (19:23)

102. Street Furniture — The design and location of benches, lights, markers, trash receptacles, and mailboxes. (19:28)

103. People Working — Making art as a form of work. (19:44)

104. Everyone Makes Things — Similarities and differences in artistic and industrial forming processes. (19:31)

105. The Human Image — Ways the human image has been represented in art to reveal social concepts and attitudes. (19:29)

Module Green

201. Spaces to Live In — The organization and characteristics of planned spaces for community living. (19:25)

202. All Kinds of Houses — Architectural solutions to problems of providing harmonious, functional human shelter. (19:24)

203. Buildings for Work and Play — Architectural design in office buildings, air terminals, schools, and cultural centers. (19:24)

204. Plazas, Malls and Squares — The relationship between the purposes and the design of outdoor spaces. (19:23)

205. Here to There — Moving from place to place, physically and mentally. (19:21)

Module Red

301. Houses for Worship — The relationship between architectural design and religious philosophy and liturgies. (19:21)

302. Pageants, Parades and Festivals — The idea that people have designed celebrations, and have created the objects, costumes, and rituals that are integral parts of festivities. (19:17)

303. Remembering Happy Times — The images artists have created to portray happy, exciting, and tender moments. (19:24)

304. Groups of People—The interaction of groups as a source of imagery for artists. (19:25)

305. Stars and Heroes — Some of the ways that art has been used to honor deities, legendary figures, and champions. (19:32)

Module Brown

401. How About a Spoon — The evolution of a useful object. A comparison of handcraft and machine manufacture. (19:28)

402. Signs of the Times — The development of signs and symbols in various times and cultures. (19:31)

403. Things to Use — Manufactured objects used for daily tasks in the house and at work. (19:30)

404. Make Yourself Comfortable — Solutions to the problem of the design of chairs and other objects for sitting. (19:31)

405. Play's the Thing — Toys and playthings — objects revealing the customs, skill, and whimsy of their makers. (19:28)

Module Yellow

501. Faces of Nature — The esthetic qualities of natural phenomena examined visually in nature and in art forms. (19:20)

502. Making the Unseen Visible — Various kinds of photography and cinematography as used for scientific research and as a source of imagery for the artist. (19:19)

503. Birds, Bees, and Bugs — Natural forms that have continuously served as sources of ideas for artists and designers. (19:21)

504. Man: Friend and Enemy of Nature — The wonders of the natural world as depicted by artists. What man has done both to care for and harm the earth. (19:29)

505. Land Images — The variety of ways people respond to the same natural setting and express this response in individual media and personal style. (19:30)

Module Orange

601. Wrappings and Trappings — How people have used costumes to create special images of themselves. (19:25)

602. Changing Your Looks — The ways people in different times and cultures have used body decoration and adornment. (18:41)

603. Getting the Message — Art as communication, and artistic forms for transmitting messages. (19:19)

604. Dreams and Fantasy — Man's inner world revealed through art. (19:37)

605. Devils, Monsters and Dragons — Demonic art images used to ward off harm, and destruction. (19:19)

Imagine That . . .

Fifteen 15-minute black and white lessons
Primary
60-page teacher's guide
30-minute teacher program

Produced by Massachusetts Educational Television (21 Inch Classroom) and WGBH-TV, Boston (1968).

"Let's pretend" is a natural and unselfconscious play activity of small children. This series helps them develop and begin to evaluate their budding dramatic skills, as they try on characters or act out ideas and feelings inspired by children's literature. Starting with simple group pantomime, the lessons progress to more complicated scenes with dialogue and interpretation. While viewers take part in creative physical and verbal activity, they also learn to plan and work cooperatively, and begin to develop appreciation for traditional and modern literature.

Marcia Chellis, television teacher for IMAGINE THAT . . ., has been actively involved in the development of childhood education in literature and in the performing arts. She has been both a master teacher and a team leader for the Milton, Massachusetts, schools. Ms. Chellis is a graduate of Northwestern University.

LESSONS

1. **Mother Goose**—Considers the idea of "character" in different rhymes. (14:58)
2. **The Three Billy Goats Gruff**—Explains the evolution of folk tales, and invites children to act out characters. (14:19)
3. **Peter Rabbit**—Concentrates on rabbits and how they move. (14:19)
4. **Poetry**—Introduces rhythm, movement, and an appreciation of the sense of touch. (14:25)
5. **Winnie the Pooh (Bees)**—Leads children into a discussion of the senses of smell and taste. (14:25)
6. **Aesop: The Country Mouse and the City Mouse**—Stimulates children's awareness of hearing by engaging them in games. (14:27)
7. **The Little Engine That Could**—Offers an opportunity for simple characterization. (14:30)
8. **The Grimm Brothers: Hansel and Gretel**—Involves children in characterization using the whole body. (14:20)
9. **Aesop: The Hare and the Tortoise, The Lion and the Mouse**—Discusses the morals of the two fables and invites children to act them out. (14:00)
10. **Winnie the Pooh: Piglet Meets a Heffalump**—Explores the ways that imagination is related to the senses. (14:25)
11. **Nonsense Poetry**—Presents nonsense poetry for pure enjoyment and for ear training. (14:47)
12. **The Shoemaker and the Elves**—Invites children to act out the characters in the story. (14:16)
13. **Caps for Sale**—Lets children identify and characterize people by the hats they wear. (14:25)
14. **Millions of Cats**—Focuses attention on cat movements. (14:03)
15. **Make Way for Ducklings**—Helps children put characters together and act out a busy city scene. (14:31)

Inside/Out

Thirty 15-minute color lessons
Intermediate
80-page teacher's guide

30-minute teacher program
15-minute informational program
Workshop Training Package

Developed through the resources of a consortium of thirty-five agencies, organized and managed by AIT. Produced for AIT by Kentucky Authority for ETV, Lexington; KETC-TV, St. Louis; WVIZ-TV, Cleveland; NVETA, Annandale; and OECA, Toronto (1973).

Available for purchase on film and videocassette.

For related materials see pages 107-110

This interdisciplinary series, developed by health educators and learning specialists, is designed to help eight-to-ten-year-olds understand and cope with their emotions. Using dramatizations and documentaries to portray experiences common to young lives, the programs deal with social, emotional, and physical problems. The purpose of INSIDE/OUT is to help young people achieve and maintain well-being, by developing life-coping skills that can serve throughout adult life. Winner of Emmy Award, National Academy of Television Arts and Sciences, for outstanding children's programming, 1974; and Distinguished Service Award, Association for the Advancement of Health Education, 1975.

Chief consultant to AIT: Orvis A. Harrelson, M.D., M.P.H., Director of Health Services, Tacoma Public Schools. National Consultant to AIT: Wallace Ann Wesley, Hs.D., Director, Department of Health Education, American Medical Association.

LESSONS

Module Blue

101. Because It's Fun—Bill thinks winning is the only thing that counts. He can't understand playing just for fun. (14:44)

102. How Do You Show?—Boys of different temperaments express or hide feelings about things that happen to them. (14:43)

103. Strong Feelings—Edgar discovers how love, fright, embarrassment, and confusion can affect the body. (14:38)

104. Must I/May I—Debbie and Bobby try to deal with situations that give them too much or not enough responsibility. (14:41)

105. Travelin' Shoes—Stuart's family has mixed feelings about a move from the country to Washington, D.C. (14:57)

Module Green

201. Just Joking—David gets his kicks from playing pranks on others until some of his "jokes" start to backfire. (14:23)

202. But . . . Names Will Never Hurt?—A boy comes to realize how prejudice affects everyone involved. (14:35)

203. Home Sweet Home—Eddie, whose parents abuse him, and Steve, whose parents are strict, run away from home. (14:38)

204. Jeff's Company—A neighbor helps Jeff discover the value of solitude at his mountain home. (14:20)

205. Buy and Buy—Pete and Joe must decide whether to buy a gimmicky toy with money saved for something else. (14:12)

Module Red

301. Can I Help?—Lisa finds that really helping people can be more difficult than pretending to help. (15:00)

302. Living With Love—Mrs. Dorothy Smith and the children who live in her foster home express genuine family love. (15:01)

303. Can Do/Can't Do—Wishing she were somebody else, Dotty imagines herself as her brother and sisters. (14:44)

304. Breakup—Becky's parents are separated: she imagines the consequences of divorce. (14:43)

305. Love, Susan—Susan's father, home from work, rejects her pleas to look at the portrait she just painted. (14:40)

Module Brown

401. Brothers and Sisters—David promises his sister that he will attend her class play, but fails to show up. (14:14)

402. Someone Special—David is hurt when he realizes that his teacher cares for her students equally. (14:43)

403. I Want To—In an imaginary scene, Patricia tries to prove she is old enough to take on greater responsibilities. (14:34)

404. When Is Help—Karen, Roger, and Pete have decidedly different ideas about giving and receiving help. (14:16)

405. Bully—Adrian, a new boy in school and an outstanding student, becomes the object of the class bully. (14:11)

Module Yellow

501. But They Might Laugh—Becky's teacher discovers that Becky is afraid to try ice skating. She suggests they go to the ice rink together. (14:11)

502. Lost Is a Feeling—After a move from Puerto Rico to Washington, D.C., Amador feels lost in the new city. (14:33)

503. Donna (Learning To Be Yourself)—Donna Pugh who is blind, is learning independence and self-worth. (14:30)

504. You Belong—"You are part of all you see" is the message of this visual essay. (14:29)

505. Just One Place—Kevin and his friends must decide whether to replant a garden after some older boys tear it up. (14:32)

Module Orange

601. In My Memory—When her grandmother dies, Linda tries to understand what this event means to her own life. (15:05)

602. I Dare You—Clarissa has to decide whether or not she should take a potentially dangerous dare. (14:30)

603. Yes, I Can—David encounters an unexpected problem when he goes on his own "overnight" at summer camp. (14:31)

604. A Sense of Joy—Chuck and his sister take different routes to the beach: she hurries, while he wanders leisurely. (14:39)

605. Getting Even—Three children form a secret club. Friends who were left out try to get even. (13:56)

Integration of Children with Special Needs in a Regular Classroom

(Lexington Teacher Training Project)

Ten 20 to 30-minute color programs
Teacher in-service
24-page discussion leader's guide
Teacher's guides for individual programs

Produced for the Lexington, Massachusetts, Public Schools with funds from the U.S. Office of Education through Title III (ESEA) and Title VI (Education of the Handicapped Act) grants, by WGBH-TV, Boston (1975).

Available for purchase on videocassette.

This project is designed to help teachers recognize and work with individual differences that affect children's learning development and to help special education teachers apply their skills in the setting of the regular classroom. The programs show a variety of teaching techniques as they are practiced in actual classrooms. These include early assessment and diagnosis as well as activities devised to treat specific problems in handwriting, reading, and mathematics. The emphasis is on practical, effective techniques that any resourceful teacher can use on a step-by-step basis. Teachers are helped to identify problems accurately and then to solve them through carefully designed and monitored methods.

PROGRAMS

1. **Early Assessment: Step to Planning**—A kindergarten teacher plans activities that will allow careful and valid observation of four basic learning skills: visual-perceptual-motor, language, body awareness and control, and behavioral organization. (26:06)
2. **Diagnosis and Educational Planning**—A teacher, a physician, and a psychologist cooperate in evaluating a student. Together they produce a comprehensive diagnosis and an appropriate educational program. (29:22)
3. **After Assessment**—A kindergarten classroom is arranged in groups for auditory, motor, visual-motor, and visual-perception skills. The teacher assists one group or one child while the others work independently. (23:29)
4. **Every Child Can Learn**—A teacher uses special techniques with a group of fourth and fifth grade students who need a more structured approach to math. A learning disabilities specialist drills students in vocabulary, sequencing, and auditory training using the kinesthetic mode. (18:46)
5. **Together They Learn**—A special educator, the regular teacher, and an aide offer retarded primary level children opportunities to work independently, in small groups, or in individual tutoring situations. (28:08)
6. **Correcting Handwriting Problems**—A teacher applies a variety of teaching techniques to assist students with problems in visual-perception. Samples of work are alternated with demonstrations of corrective activities. (18:48)
7. **Reading and Learning Styles**—First and second grade children are grouped for a reading lesson. Detailed examples show how reading approaches are matched to learning styles. (28:13)
8. **Developing Children's Languages**—First grade students of diverse backgrounds receive help with auditory discrimination, English concepts and vocabulary, visual memory, and more advanced skills. (29:58)
9. **Mastering Math Skills**—The results of a regularly given timed math test are graphed to show progress. Then third and four grade students are arranged in groups for treatment of specific problems. (28:58)
10. **Every Student Is Different: The High School**—Dramatic sequences show various teaching techniques in action and the responses they elicit. Individualized instruction provides another dimension to teaching. (29:18)

Introduction To Sociology
(Sociology I)

Sixteen 30-minute black and white lessons
Post-secondary
7-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

This course presents the basic terms of sociology and the sociological view of "men in groups." It considers major sociological institutions, various types of groups (categorical, territorial, and purposeful), and basic social processes (public opinion, deviance, control, and social change).

The lectures have been prepared and presented by Dr. Norman W. Storer, Chairman, Sociology and Anthropology Department, Bernard M. Baruch College, City University of New York; formerly Assistant Professor of Sociology, Harvard University.

LESSONS

1. **The Field of Sociology**—Defines sociology, surveys the sociologist's assumptions about the nature of man, and introduces examples of "sociological perspective." (28:55)
2. **Basic Concepts**—Develops the concepts of *interaction, status, group, norm, role, status-set,* and *role-set.* (28:56)
3. **The Concept of Culture**—Discusses the nature of symbols, defines culture, and distinguishes culture as an independent phenomenon in social life. (28:55)
4. **Social Institutions and Social Exchange**—Explores universal cultural needs, names major social institutions of society, and suggests basic principles governing all social institutions. (28:58)
5. **The Economic Institution**—Analyzes the concepts of property and economic exchange, and takes up the relationships between the economic system and other parts of the society. (28:56)
6. **The Political Institution**—Analyzes the concept of power into three specific types: inducement, influence, and authority, and examines consequences of basing a government on rational-legal grounds. (28:50)
7. **The Family**—Examines the basis for the family unit, discusses types of marriage relationships and family organization, and considers historical changes in family structure. (28:55)
8. **The Religious Institution**—Explains the sociologist's analytical approach to religion, explores the need to develop religious practices, and discusses major forms of religious organization. (28:57)
9. **Social Stratification**—Questions why people rank each other, discusses money, power, and esteem as determinants of a person's social position, and considers social mobility in America. (28:56)

9-A. **Intergroup Relations**—Explores the relations between socially-defined groups of people, introduces the concepts of social distance, prejudice, and discrimination, and traces the development of the civil rights movement in America. (28:58)

10. **Communities**—Discusses the nature and study of territorial groups, contrasts "quality of life" between rural and urban areas, and explains relationships between density and heterogeneity. (28:55)
11. **Formal Organizations**—Discusses the nature of rules in formal organizations, considers basic types of control, and introduces the criterion of organizational "health." (28:56)
12. **Public Opinion**—Defines public opinion, outlines ways of determining current public opinion, and explains the importance for totalitarian governments of controlling mass media. (28:42)
13. **Deviance**—Defines deviance, illustrates "ideal-types" of motivation for deviance, and outlines different types of deviant behavior. (28:53)
14. **Social Control**—Illustrates major types of social control, and introduces the relative economic and social "costs" of control. (28:50)
15. **Social Change**—Discusses the internal and external sources of social change, examines earlier theories, and points out the importance of studying social change today. (28:50)

It's All Up To You

Thirteen 15-minute color lessons
Intermediate, junior high
Teacher's guide

One 30-minute teacher program

Produced by the Cooperative Educational Service Agency No. 13, in cooperation with WHA-TV, and the Wisconsin Department of Public Instruction (1977).

IT'S ALL UP TO YOU is designed to help students develop political understanding and decision-making skills and to provide an introduction to history and the social sciences, with emphasis on political science. The concepts of laws, government, democracy, decision-making, citizenship, institutions, interdependence, and ideology form the base of the programs.

LESSONS*

1. **Tell Me Who You Are**—Promotes a recognition and acceptance of other world views.
2. **Friendly Persuasion**—Illustrates how human beings function in political ways to meet their individual group needs. (14:30)
3. **Who's in Charge?**—Discusses government as an institution established by groups of people for themselves. (14:50)
4. **Who Needs It?**—Analyzes the conditions necessary for government to function, different types of past and present governments, and the relationship between the ruler and ruled. (14:56)
5. **The Shopping Trip**—Illustrates how institutions, governmental and nongovernmental, vary in form and function. (13:45)
6. **A Dog's Life**—Discusses local governments and the limits of their authority. (12:40)
7. **What a State You're In**—Concentrates on the "in-between" jurisdiction of state governments.
8. **We the People**—Looks at national governments and their functions.
9. **The Country of One Person**—Discusses the increasing need for international government.
10. **Lost in Space**—Shows how future societal alternatives may be predicted by a better understanding of our present society.
11. **What in the World's Come Over You?**—Analyzes historical events as they influence present societies and act as clues to future ones.
12. **Who Cares**—Examines the rights and responsibilities, personal involvement, and needs of citizens and how these may cause institutions to change.
13. **State of the World Report**—Illustrates the opportunities and responsibilities of individuals to participate in politics and government.

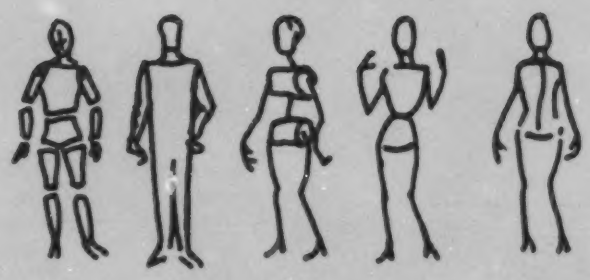
* Times for some programs in this series were unavailable at the time of publication.

54

Let's Draw

Thirty-four 15-minute color lessons
Primary
80-page teacher's guide

Produced by KOKH-TV, Oklahoma City Public Schools (1976).



This course is based upon the philosophy that drawing is a way of communicating one's thoughts and feelings to others and, sometimes, to one's self. It encourages children to express themselves graphically and gives them suggestions for doing so. The series is similar in scope and approach to THE DRAW MAN but with special appeal to younger children. Subjects are chosen from those young children enjoy most. Presentations are slow-paced and simple.

Paul Ringler is a professional artist and is currently the Director of Broadcasting for the Oklahoma City Public Schools. He has had extensive experience as a television art teacher, and also has been a graphics consultant and a classroom art teacher.

LESSONS

1. **Cats** (13:39)
2. **Ovals** (13:47)
3. **Birds** (13:51)
4. **Elephants** (13:44)
5. **Faces-Expressions** (13:38)
6. **Boats-Water** (13:59)
7. **Halloween—Haunted House** (13:48)
8. **Halloween—Symbols** (Witches, etc.) (14:12)
9. **People** (13:48)
10. **Small Animals** (13:54)
11. **Forest—Outdoor scene** (cabin) (14:02)
12. **Thanksgiving** (13:56)
13. **Deer** (13:51)
14. **Santa Claus** (13:52)
15. **Christmas** (13:59)
16. **Shapes — In Building** (13:57)
17. **Shapes — Geometric** (14:05)
18. **Cartoon Faces** (13:48)
19. **Cartoon Bodies** (13:50)
20. **Dinosaurs** (14:03)
21. **Lions** (13:48)
22. **Horses** (13:47)
23. **Hats** (13:51)
24. **People** (Figures in action) (13:54)
25. **Shapes, Surface** (13:52)
26. **Rabbits — Easter** (13:54)
27. **Squiggles** (13:49)
28. **Cars** (13:52)
29. **Shadows** (13:50)
30. **Trees** (13:53)
31. **Distance in Pictures** (13:50)
32. **Outer Space** (13:31)
33. **Underwater** (13:52)
34. **Wild Animals** (13:49)

Let's See America

Twenty-six 30-minute black and white lessons
Intermediate
20-page teacher's guide

Adapted for classroom use by AIT
from the NET series WHAT'S NEW (1969).

Field trips by camera to American landmarks—from the country's oldest city, St. Augustine, to one of its newest wonders, the Houston Astrodome—give viewers a perspective on their heritage and a sense of the rich diversity of American life today. The programs, whose themes range from the pursuit of a giant whale to a workday aboard a modern Georgia shrimp boat, stimulate youngsters to seek further information. In addition, this series is designed to help students interpret facts, make better generalizations, and—through related activities—improve their speaking and writing skills.

LESSONS

1. **Our Oldest City**—Accompanies a swashbuckling captain of yesteryear through St. Augustine, Florida. (27:38)
2. **Plymouth Revisited**—Explores the history of colonial America beginning at Plymouth, Massachusetts. (26:46)
3. **Master Spy of the Revolution**—Focuses on the spying activities of Paul Revere. (27:57)
4. **Concord: Days of Preparation**—Examines the colonists' preparation for the Revolutionary War and the events of April 19, 1775. (27:05)

4a. **Fort Ticonderoga**—Tours the historic Revolutionary War site and witnesses reenactments of famous battles. (28:14)

5. **Home of Yankee Whaling**—Shows the pursuit and capture of a giant whale. (26:49)
6. **Old Ironsides**—Visits the frigate "USS Constitution." (27:13)
7. **Saugus Ironworks**—Explores the Saugus Ironworks in Saugus, Massachusetts. (28:00)
8. **Adventure with Longfellow**—Recreates some of Henry Wadsworth Longfellow's poems. (27:59)

9.&10. **Washington, D.C.: Hub of Our Nation**—Visits the Senate, the House of Representatives, the President's Room, Statuary Hall, and the Crypt. (27:52 & 27:54)

11. **At the United Nations**—Accompanies a United Nations guide on a VIP tour of the U.N. Headquarters in New York City. (26:07)

12.&13. **From the Potomac**—Views the nation's capital from the Potomac River aboard a U.S. Navy launch. (26:14 & 26:34)

13a. **Where Lincoln Grew Up**—Recreates Lincoln's years in New Salem, Illinois. (25:48)

14. **Okefenokee Journey**—Follows a boat into the mysterious Okefenokee Swamp. (26:56)

14a. **The Great Swamp**—Explores New Jersey's Great Swamp with a boy from the city. (29:55)

15. **Day on a Shrimp Boat**—Shows a workday aboard a shrimp boat. (27:20)
16. **The Mighty Mississippi**—Focuses on the history and special features of the Mississippi River. (25:19)

16a. **Stone Mountain**—Visits Stone Mountain near Atlanta, where a huge granite dome rises 600 feet above the surrounding park. (27:04)

17. **Along the Rio Grande**—Explores the way of life, past and present, along the Rio Grande River. (27:00)
18. **Desert Adventure**—Visits a living museum of mountain lions, jaguars, vultures, and other creatures of the Sonoran Desert. (28:14)
19. **Unusual Patients**—Follows a veterinarian on his rounds at the zoo in Washington, D.C. (27:02)

19a. **The Eighth Wonder**—Follows a boy through the Astrodome in Houston. (27:34)

20. **Behind the Scenes**—Takes a field trip to Bracketville, Texas, where a permanent western village is used for making movies. (28:28)

20a. **Circus Parade**—Visits the Circus World Museum at Baraboo, Wisconsin. (26:46)

Life World 2000

Twelve 15-minute color lessons
Junior high, senior high
64-page teacher's guide

Produced by KETC-TV, St. Louis, under a grant from the Sunnen Foundation of St. Louis (1973).

Available for purchase on videocassette.

This series, using a magazine format and a variety of techniques, focuses on the relationship between population and the quality of life, and population and the development of public policy. Included are humorous and dramatic sketches, documentary sequences, interviews, songs, and animation. Several of the programs feature Dr. Barry Commoner and Dr. Paul Ehrlich, who present their sometimes divergent views on population problems. The series is open-ended and invites students to examine their own values and the consequences of the decisions they may make about population.

Chief Consultant: Stephen Viederman, Assistant Director of the Demographic Division of the Population Council, New York City.

LESSONS

1. **Overview**—Offers a comprehensive view of the population phenomenon, pointing out that the study of population is the study of people, not just numbers. (14:18)
2. **Optimum Level**—Makes clear that what is considered optimum varies according to human values and is more a social issue than a scientific matter. (14:27)
3. **Trends**—Considers factors of population change and the power of geometric growth including its impact on future generations. (14:44)
4. **Migration**—Depicts the United States as a nation on the move. Probes into the reasons for the population decline in small towns, and the possibility of interstellar migration. (14:32)
5. **Pollution**—Considers all sides of the question, then concludes with a humorous silent movie, "The Throwaway Society." (14:30)
6. **Feeling Crowded?**—Compares the scientific measure of density with an individual's perception of crowding. Points out that density of population is only one cause of urgent social problems. (14:53)
7. **Metropolitan Areas**—Focuses on urban problems and on the real challenge to metropolitan planners—how to make cities livable again. (14:30)
8. **Families and Babies**—Explores the changing roles and sizes of American families. Points out that family size has often been determined by economic need. (14:50)
9. **Zero Growth?**—Investigates the possible consequences of a stabilized population on the economy, society, business, education, and the environment. (14:34)
10. **Attitudes**—Visits a museum exhibit on population and discovers a variety of individual and group attitudes towards population issues. (13:57)
11. **Population Policy**—Emphasizes the need in the United States for coordinated policies to guide population change. (14:30)
12. **Alternative Futures**—Emphasizes the need for long-range planning, as a visitor to earth in the year 2727 learns that humanity has survived, but that the planet is depleted of its resources. (14:00)

Magic Pages

Thirty 15-minute color lessons
Primary
34-page teacher's guide

Produced by KLVX-TV, Las Vegas (1976).

The diversity and depth of children's literature are reflected in this series of highly enjoyable stories for second and third-graders. The stories draw on a variety of topics—from moral dilemmas as ancient as Aesop to the contemporary voyage of a small, hand-carved Indian and canoe from the high Nipigon country of Canada to the Atlantic Ocean. A wide range of techniques—pantomime, drama, reading, poetry, and song—add vitality to programs that are intended to encourage children to become frequent and enthusiastic readers.

Judy Wimmer, Instructional Television Resource Advisor for KLVX-TV, is the teacher/hostess for the series and also the author of the teacher's guide. Ms. Wimmer received her bachelor's degree in elementary education from Utah State University in 1971, taught second grade for two years in Las Vegas, and has been involved in many civic, school, and community theater productions.

LESSONS

1. **Ira Sleeps Over** by Bernard Waber (12:10)
2. **Messy Sally** by Galdys Yessayan Cretan (12:39)
3. **A Pair of Red Clogs** by Masako Matsuno (14:45)
4. **The Eggs** and **Three Gold Pieces**, Greek folk tales retold by Aliki (15:02)
5. **Paddle to the Sea** by Holling C. Holling (14:17)
6. **Do You Move As I Do?** by Helen Borton (12:43)
7. **Twice Upon a Time** by Irwin Shapiro (13:52)
8. **A Selection of Fables** by Aesop (13:58)
9. **You Look Ridiculous Said the Rhinocerus to the Hippopotamus** by Bernard Waber (12:23)
10. **The Bears on Hemlock Mountain** by Alice Dalgliesh (15:13)
11. **The Green Machine** by Polly Cameron (14:54)
12. **The Duchess Bakes a Cake** by Virginia Kahl (12:45)
13. **The Aminal** by Lorna Balian (13:41)
14. **Sphero, the Reluctant Snowball** by Lisa Sannazzarc (16:19)
15. **The Case of the Hungry Stranger** by Crosby Bonsall (11:25)
16. **The Fish from Japan** by Elizabeth K. Cooper (13:52)
17. **Jim and the Beanstalk** by Raymond Briggs (14:47)
18. **The Troll Music** by Anita Lobel (14:56)
19. **The Seamstress of Salzburg** by Anita Lobel (14:30)
20. **The Stone Soup** adapted from a French folk tale (11:54)
21. **The Five Chinese Brothers** by Clair H. Bishop and Kurt Wiese (14:35)
22. **My Father's Dragon** by Ruth Stiles Gannett and **The Hundred Dresses** by Eleanor Estes (14:58)
23. **The Singing Trilogy** Three American Folk Ballads (14:27)
24. **Billy Goat in the Chili Patch** by Leo F. Lazarus (13:38)
25. **Hansel and Gretel** adapted from the Brothers Grimm story (14:42)
26. **The Book of Giant Stories** by David L. Harrison (14:43)
27. **The Dragon in the Clock Box** by M. Jean Craig (14:53)

HOLIDAY LESSONS

A. **Sometimes It's Turkey, Sometimes It's Feathers** by Lorna Balian (13:37)
B. **How Six Found Christmas** by Trina Schart Hyman (14:56)
C. **The Adventures of Egbert the Easter Egg** by Richard Armour (13:02)

Major American Books
(English III)

Fifteen 30-minute black and white lessons
Post-secondary
2-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

Individual works of fifteen of America's great authors are surveyed. The course considers many ways of analyzing a book in order to better understand and evaluate it: as an example of a literary tradition, as a reflection of the author's milieu, and as a writer's personal search for identity.

The lectures have been prepared and presented by Dr. Harold C. Martin, President, Union College; formerly Lecturer on General Education, Harvard University.

LESSONS

1. **Nathaniel Hawthorne (1804-1864): *The Scarlet Letter.*** (28:56)
2. **Herman Melville (1819-1891): *Bartelby the Scribener. Benito Cereno.*** (29:03)
3. **Henry David Thoreau (1817-1862): *Walden.*** (29:00)
4. **Walt Whitman (1819-1892): *Selected Poems.*** (28:54)
5. **Mark Twain (1835-1910): *Huckleberry Finn.*** (28:55)
6. **William Dean Howells (1837-1920): *Rise of Silas Lapham.*** (28:56)
7. **Henry James (1843-1916): *The Portrait of a Lady.*** (28:55)
8. **Stephen Crane (1870-1900): *Red Badge of Courage.*** (28:54)
9. **Willa Cather (1876-1947): *Death Comes to the Archbishop.*** (28:55)
10. **F. Scott Fitzgerald (1896-1940): *The Great Gatsby.*** (28:56)
11. **Ernest Hemingway (1898-1961): *A Farewell to Arms.*** (28:57)
12. **Eugene O'Neill (1888-1953): *Desire Under the Elms.*** (28:55)
13. **Thomas Wolfe (1900-1938): *Look Homeward, Angel.*** (28:56)
14. **William Faulkner (1897-1962): *As I Lay Dying.*** (28:44)
15. **Robert Frost (1874-1963): *Selected Poems.*** (28:55)

Man and His Motives
(Psychology II)

Fifteen 30-minute black and white lessons
Post-secondary
8-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

This course explores the subject of human motivation, introducing basic theories and research findings that bear on the "why" of man's thought and action.

The lectures have been prepared and presented by Professor Kenneth J. Gergen, Associate Professor of Psychology, Swarthmore College.

LESSONS

1. **Stop Him! He's About to Jump: The Study of Motivation**—Introduces and evaluates several of the methodological approaches used in the study of motivation. (28:55)

2/3. **The Body's Wisdom: The Biology of Motivation**—Examines three biologically based motives: hunger, sleep, and sex. (28:56) (28:46)

4. **Like Father, Like Son: The Instinctual Basis of Motivation**—Discusses inherited patterns of behavior as they exist in various animal species. (28:16)

5. **Plastic Fantastic Man: The Learning of Motives**—Deals with acquired motivation—those motives which develop through socialization. (28:55)

6. **The Struggle Within: Basic Concepts of Freudian Theory**—Sketches out a number of key concepts in psychoanalytic theory: the ego, superego, and id. (28:55)

7. **The Dark Passage: Freudian Theory of Development**—Discusses the various stages of psychosexual development and the relationship of the particular experiences one has at these stages to later motivational patterns. (28:46)

8. **Reducing the World to Pint Size: The Need for Consistency**—Examines dissonance theory, one particular theory dealing with consistency. (28:55)

9. **Expanding the World to Giant Size: Exploration and Novelty Seeking**—Reveals through a series of laboratory demonstrations that individuals seek stimulation and that novelty itself is rewarding. (29:23)

10. **Getting Somewhere: Achievement Motivation in Persons and Societies**—Describes a way of measuring differences in the need to achieve. Visits with Professor David McClelland, authority on achievement motivation. (28:53)

11. **Some Men Are Islands: The Need for Social Approval**—Demonstrates one major way of measuring the approval need, and discusses experimental studies documenting important ways behavior is affected by approval need. (28:52)

12. **The Ghost from Within: Anxiety**—Discusses various points of view concerning the nature and origin of anxiety. (28:52)

13. **Living to the Hilt: The Psychology of Self-Actualization**—Deals with a set of ideas about human striving which suggest that man has the innate capacity to live in a full-functioning and self-fulfilling way. (28:35)

14. **Obstacles to Action: The Thwarted Motive**—Considers environmental obstacles and internal or psychological blocks that thwart motives. Discusses conflicting motives and forms of conflict resolution. (28:50)

15. **The World through Rose Colored Glasses: Motivation and Perception**—Examines a series of studies demonstrating how a person's motives influence his perception of the environment. (28:50)

Math Matters

Twenty 15-minute color lessons in two modules
Intermediate, junior high
45-page teacher's guide

Produced by KLRN-TV, Austin-San Antonio (1975).

The concepts are basic and timeless, but the approaches are fresh and often zany, in this series designed to inspire students turned off by traditional approaches to mathematics. Lessons range from a group therapy session for victims of "fraction phobia" to the adventures of a "counter" spy in search of large numbers. A deft combination of humor and concrete situations, these programs are useful not only for individual or small-group remediation, but also for large-group introduction or review of basic mathematical concepts.

LESSONS

Blue Module

101. Large Numbers — A variety of concrete, often zany situations illustrate the written forms, punctuation, and reading of large numbers. (14:13)

102. Doing and Undoing—"Doing" (an operation) and "undoing" (its inverse) are demonstrated in commonplace activities as well as mathematically. The program also considers operations with no inverse, one example being multiplication by zero. (14:43)

103. Triangles — Executives of Prolific Polygons, Inc., see presentations of the firm's three basic types: the equilateral, the isosceles, and the scalene. A short sequence defines the triangle in set theory terms. (14:37)

104. Quadrilaterals—Cecily Snoop visits a quadrilateral factory to learn the definitions of squares, rectangles, and rhombi, parallelograms, and trapezoids. A Venn diagram shows the relationship of polygons in set theory terms. (14:33)

105. Metric System—Linear Measure—Newscaster Graham Meter reports on the metric system and discovers the relationships between millimeter, centimeter, meter, and kilometer. (14:18)

106. Metric System—Weight and Capacity—Gomez the Gourmet explains grams and liters, Dita provides information on kilograms, and Graham Meter narrates film clips showing commercial uses of the metric system. (14:54)

107. Symmetry—Symmetry about a line, two lines and a point illustrated through a series of visuals and short vignettes. (14:24).

108. Fractions I—Therapy for "fraction phobia" includes building meanings for the terms "numerator," "denominator," and "congruent." Examples of two types of fractions—"how much" and "how many"—are demonstrated. (14:34)

109. Fractions II—B.J. Toddy recounts the tale of a friend's inheritance to show the relationship between numerator and denominator in fractions. He uses coins to demonstrate equivalence. (14:35)

110. Properties of Zero and One—As Clarence and friends watch TV, "Stellar Voyage" presents properties of zero, properties of one, and other related mathematical concepts. (14:53)

Green Module

201. Percent—The meaning of "percent" is illustrated in the context of commercials, newscasts, a quiz show, and a "consumer tips" feature. (14:27)

202. Probability I—A gumball machine, a gypsy fortuneteller, and a probability counseling booth are used to present the basic concepts of probability. (14:25)

203. Probability II — The possibility of winning a free meal at a restaurant called Fat Chance draws the characters into a challenging probability exercise. (14:22)

204. Area I—A wall covered with graffiti and a doghouse to be carpeted provide the incentive for learning how to find the area of squares and rectangles. (14:17)

205. Area II—Constructing pup tents for a school play introduces the need for finding the area of a triangle. (14:15)

206. Data Graphs—An awards ceremony honors a detective show in which graphs—line, bar, and circle—provide the incriminating evidence. (14:44)

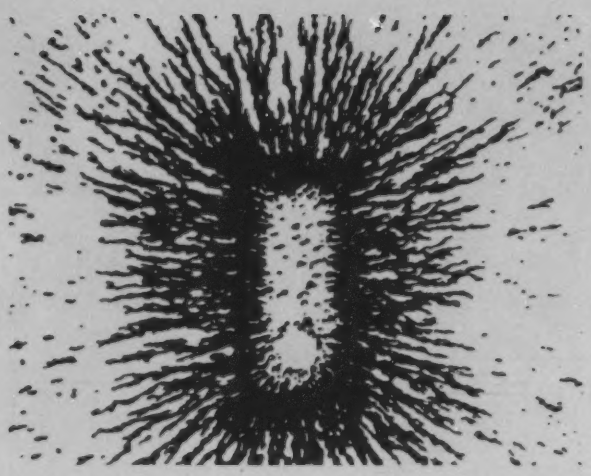
207. Unit Pricing—A robot housekeeper is sent to the factory for an adjustment in his circuitry which will equip him to do comparison shopping. (14:41)

208. Volume I— A detective format centers around the investigation of a construction company, where the basics of volume must be learned in order to compute cubic yards of dirt and cubic yards of concrete. (14:59)

209. Volume II—This program has characters computing the volume of cylinders, pyraminds, and cones. (14:30)

210. Estimation—The difference between a wild guess and an estimate is examined, with an emphasis on the usefulness of estimation in a variety of situations. (14:40)

Matter & Motion



Seventeen 15-minute color lessons
in four modules
Intermediate
24-page teacher's guide

Produced by Hampton Roads Educational Television Association, WHRO-TV, Norfolk (1973).

In this visually rich series, specialized photographic techniques allow youngsters to see volcanoes and mountains being formed, to inspect Jupiter's red spot and the rings of Saturn, to watch a year of days and seasons pass in a few short minutes. Such memorable experiences help make physical science topics important and understandable. Ecologically-oriented, the lessons encourage students to take a personal interest in their environment. The series is a companion course to ANIMALS & SUCH.

Larry Crum is the producer, designer, and narrator for MATTER & MOTION, and also the author of its teacher's guide. Before becoming a studio teacher and producer for Hampton Roads Educational Television Association, he taught biology and earth science in Virginia public schools.

Cinematographer Stewart Harris is a professional illustrator, animator, cartoonist, and still photographer with film credits for more than a hundred projects in instructional and public television.

LESSONS

Module Blue

101. Something in the Air—Surveys the causes and the development of air pollution. (14:30)

102. Our Polluted Waters—Introduces plants, plant-like organisms, and sea animals that thrive in polluted water. (14:30)

103. Radioactivity and the Environment—Explores the properties of radioactive materials. (14:34)

104. Sounds around Us—Investigates the origin of sound and how it is received by the human ear. (14:32)

Module Green

201. About Energy—Studies the origins and physical characteristics of energy. (14:34)

202. Simple Machines—Uses toys, games, recreational facilities, and tools to illustrate how simple machines work. (14:34)

203. Machines That Move People—Visits Transpo '72 to see past, present, and future modes of transportation. (14:30)

204. Magnetism and Electricity—Considers the relationship between magnets and electricity. (14:33)

Module Red

301. Earth Resources—Considers the use and misuse of our natural resources and emphasizes the value of natural resources to man. (14:30)

302. Thinking About Rocks—Looks at the way rocks are broken down by the forces of nature. (14:34)

303. The Earth's Past—Studies the evolution of the earth and of life forms that have existed on its surface. (14:33)

304. The States of Matter—Introduces the states of matter—solids, liquids, and gases—and the concept of a plasma state. (14:35)

Module Brown

401. Days and Seasons—Illustrates the changes that occur during a single day and during the four seasons. (14:28)

402. It's About Time—Uses special effects photography to study the dimension of time. (14:40)

403. The Solar System—Uses advanced photographic techniques to explore the sun, planets, moons, asteroids, and comets of our solar system. (14:34)

404. Weather—Considers how the weather influences our lives. (14:28)

Holiday Lesson (order separately)

About Christmas Trees — presents a visual study of trees, cut and uncut, artificial and real, unadorned and magically decorated with lights and ornaments — set to the music of antique music boxes. (14:34)

A Matter of Fact

Fifteen 20-minute color lessons
Junior high, senior high
16-page teacher's guide
Produced by WETA-TV, Washington, D.C. and AIT (1973).
Available for purchase on film and videocassette.

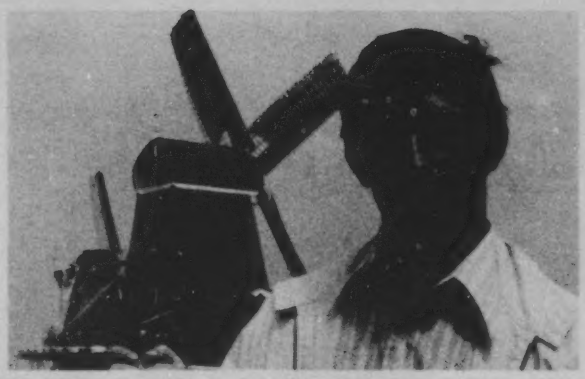
Focusing on works of non-fiction, A MATTER OF FACT reveals to young people how literature can recreate the excitement of man's struggles and achievements. With each program featuring a single work or a single theme, the series explores man's curiosity and zest for adventure, his creativity, and his capacity for strength, dignity, and compassion, as well as for cruelty and oppression. On-location film segments, dramatizations, and personal interviews add visual impact to this series, which is designed to stimulate the student viewer to read the featured works and to develop interest in non-fiction literature. The series is a companion course to A MATTER OF FICTION. Winner of Bronze Medal, Atlanta International Film Festival, 1974; Learning Magazine Award, 1974; and CINE Golden Eagle Award, 1976.

John Robbins, one of the most popular and effective teachers ever to appear on television, is the creator of and host for the series. An elementary school teacher and a studio teacher of language arts, Mr. Robbins is also a writer, a painter, an actor, and a musician. He uses each of his talents to enhance these television presentations.

LESSONS

1. **Search and Serendipity**—Explores how man's discoveries on earth and in space have come about through deduction, through mathematics, and sometimes by accident. (19:43)
2. **In a Violent Time**—Dramatizes the struggles of two 17th century American women, Ann Hutchinson and Mary Dyer, against religious and political oppression. (19:52)
3. **Last Stand**—Examines the Roman seige of Masada, a mountain fortress held by Jewish partisans in the first century A.D., as an historic event and as a living symbol. (19:35)
4. **It Will Happen Again**—Investigates why people persist in building houses in dangerous places, despite the recurrence of natural disasters. (19:49)
5. **Man's Inhumanity**—Reflects on the experiences of several persons whose courage and endurance enabled them to survive humanely through the atrocities of World War II. (19:50)
6. **Man in a Paper Boat**—Interviews Thor Heyerdahl and his crewmate Erik Hesselberg about their discoveries and experiences on the sea voyages of the Kon Tiki and the Ra II. (19:34)
7. **And There Were No More**—Looks at animal species near extinction, and considers the conservation work of zoologist Gerald Durrell, and the national effort to save the whooping crane. (19:16)
8. **The Creative Person**—Illustrates how the artist reveals the spiritual dimension of the human experience, spotlighting actress Julie Harris and the work of artist Marc Chagall. (19:43)
9. **Diggers and Finders**—Examines man's attempt to make clear his kinship with his predecessors by means of archeological exploration. (19:35)
10. **Black Wealth**—Illustrates the spiritual richness of black artists involved in the black struggle for freedom and recognition, spotlighting writer-photographer Gordon Parks and actress Margo Barnett. (19:56)
11. **As the World Plays**—Explores how play activities reflect the nature of man. (19:40)
12. **Trail of Tears**—Focuses on the Indian's struggle to maintain his identity and his heritage by following the forced exodus of the Cherokees from their homeland to the West. (19:29)
13. **White Magic, Black Magic**—Dramatizes how people have attempted to gain special power over persons and things by manipulating symbols of good and evil. (19:38)
14. **Action/Reaction**—Examines how ethology, the study of pure animal behavior, has enabled man to learn more about his own behavior. (19:11)
15. **To a Different Drum**—Studies the struggles of Henry David Thoreau and American Revolutionary "soldier," Deborah Sampson, against social conformity. (19:24)

A Matter of Fiction



Fifteen 20-minute color lessons
Junior high, senior high
46-page teacher-student guide

Produced by WETA-TV Washington, D.C.
in association with AIT (1969).

Focusing on contemporary works that feature children in problem situations, A MATTER OF FICTION stimulates young people's interest in reading. The lessons present excerpts from the books but never reveal the endings. Documentary films, illustrations, pantomimes, and film segments shot on location provide visual support. The series is designed to help young people develop an appreciation for a variety of literary forms and styles and an awareness of social differences and similarities in various cultures. The series is a companion course to A MATTER OF FACT. Winner of Ohio State Award, 1970.

John Robbins is a distinguished and multi-talented teacher in the field of instructional television. He received a National Educational Television award for an earlier series, COVER TO COVER, and an award for excellence from the American Association of University Women for the series ROAMING THE SMITHSONIAN, produced for NET. Mr. Robbins has also performed piano recitals and has exhibited paintings at his alma mater, East Carolina University.

LESSONS

1. **Across Five Aprils** (Irene Hunt)—Describes how the Civil War splits a family and causes a boy to understand some less admirable traits of men. (19:35)
2. **All the Dark Places** (J. Allan Bowsworth) and **Five Boys in a Cave** (Richard Church)—*All the Dark Places* tells how a boy who gets lost exploring a cave finds his way back. *Five Boys in a Cave* centers on five boys who rescue two of their group from a deep pit. (19:36)
3. **Ash Road** (Ivan Southall)—Focuses on several families who live in the path of an unstoppable forest fire. (19:30)
4. **Bookbag**—Describes and analyzes themes of the books, *The Black Pearl* (Scott O'Dell), *White Fang* (Jack London), *Boy Alone* (Reginald Ottley), *The Mutineers* (Richard Armstrong), *Leon* (Helen Griffiths), and *The Bushbabies* (William Stevenson). (19:30)
5. **The Day of the Bomb** (Karl Bruckner) and **The Little Fishes** (Erik Christian Haugaard)—*The Day of the Bomb* concerns the story of a Japanese girl dying of radiation sickness. *The Little Fishes* tells how three children survive in the war-torn rubble of Naples. (19:33)
6. **Donbas** (Jacques Sandulescu) and **The Endless Steppe** (Esther Hautzig)—*Donbas* tells the story of how the author escaped from Russian coal mines. *The Endless Steppe* tells of a Polish girl's life among Russian peasants after she and her family are sent to the Siberian mines. (19:29)
7. **Durango Street** (Frank Bonham)—Set in Watts, California, concerns a boy who is forced to join a gang in a ghetto called "The Flats." (19:33)
8. **The Faraway Lurs** (Harry Behn)—Tells the story of a girl in the Bronze Age who falls in love with a boy from a rival tribe. (19:38)
9. **The Innocent Wayfaring** (Marchette Chute) and **A Traveler in Time** (Alison Uttley)—*The Innocent Wayfaring* tells about a girl of the Chaucerian Era who escapes from a convent to join a circus. *A Traveler in Time* concerns a modern day girl who travels into the past and becomes involved in a plot to save the life of Mary, Queen of Scots. (19:30)
10. **The Outsiders** (Susan E. Hinton)—Focuses on warring gangs in a Midwestern city whose conflicts result in the death of a boy. (19:30)
11. **The Pit** (Reginald Maddock) and **Smoke** (William Corgin)—*The Pit* centers on a boy who strikes back after enduring the beatings of his drunken father. *Smoke* describes how a boy finds a lost dog and then begins to cooperate with his stepfather. (19:18)
12. **A Slave's Tale** (Erik Christian Haugaard)—Concerns the sailing misadventures of a slave girl's youthful master during the Viking Age. (19:55)
13. **Undertow** (Finn Havrevold) and **Count Me Gone** (Annabel and Edgar Johnson)—*Undertow* tells about a young boy's idolatry for an older boy who has stolen a sailboat. *Count Me Gone* describes how a boy becomes disillusioned after his brother uses him as a scapegoat. (19:34)
14. **The White Mountains** and **The City of Gold and Lead** (John Christopher)—Tells about extraterrestrial beings who plan to replace the earth's atmosphere with their own which would destroy the human race. (19:38)
15. **The Year of the Jeep** (Keith Robertson)—Concerns two boys who try to earn money to buy a jeep they have restored to working order. (19:35)

MeasureMetric

Twelve 15-minute color lessons
Intermediate, junior high
Teacher's guide

Developed through the resources of a consortium of twenty-five agencies, organized and managed by AIT. Produced for AIT by OECA, Toronto; UNIT Productions, Salt Lake City; and the South Carolina Department of Education through its Office of ITV and Radio, and the South Carolina ETV Commission (1977).

Available on film and videocassette.

This is a series for middle- and upper-elementary students that uses the metric system in dealing with the process of measurement. The programs employ engaging characters and a variety of production techniques to help students understand better the process of measurement, accurately employ measuring instruments, and report and interpret measurements using metric units.

LESSONS*

1. **Measuring**—A carnival barker, Smiling Bob O'Shea, deals with a heckler who asks, "Why do we measure?" In doing so he introduces a variety of measuring instruments used in everyday life, and also gives the crowd "sneak previews" of the measurement show to follow.
2. **Length 1: Who Measures?**—A pizza is one of the objects that Murray (the wizard of metric measurement) employs to help his cousin Randolph learn to use metric measuring devices. In the process, Randolph discovers how millimetres, centimetres, and decimetres relate to one another and to the metre.
3. **Length 2: A Thousand Clicks**—Murray helps Randolph learn to use tools to measure round objects and distances longer than the measuring device. Randolph finds out how long a kilometre is — by running around a track!
4. **Length 3: The Final Test**—Randolph learns to estimate the size of large and small objects, and discusses with Murray the meaning of "approximate" measurement.
5. **Area 1**—In a dream, Barbara is led by a 12 cm high rabbit to Arealand, where she explores the concept of area in a series of fanciful adventures.
6. **Area 2**—In the Gallery of Hanging Squares, a walrus helps Barbara learn to measure the areas of squares and rectangles, using a grid.
7. **Area 3**—Barbara's adventures in Arealand continue. She learns from a swan how to use a formula for determining area, she converses with a talking hectare, and she proves her measuring abilities "in court."
8. **Volume 1**—Joey, whose grandfather is Doc of "Doc Cranshaw's Wild West Medicine Show," learns about litres and how to measure volume indirectly. Later he goes to the store for Widow Brown and becomes interested in a contest to guess the number of pieces of candy in a jar.
9. **Volume 2**—After helping his grandfather with the magic show, Joey puts his mind to the problem of estimating the number of pieces of candy in the jar. At school, his teacher explains how to use a formula to compute the volume of rectangular objects.
10. **Volume 3**—Joey discovers how to use the displacement technique to measure the volume of an egg and a crystal ball. He helps a prospector plan a dam, and then wins a puppy in the candy estimating contest.
11. **Mass 1**—Anna Clark and her friend Inspector Hector become involved in a case that requires weighing evidence — peanuts, carrots, and an elephant. She discovers that identical mass does not necessarily mean identical volume.
12. **Mass 2**—Inspector Hector shows Anna how to use appropriate beam balance scales to measure the mass of the clues. Together they solve the mystery of the disappearing elephant.

*Times for programs in this series were unavailable at the time of publication

Meet the Arts

Fifteen 30-minute black and white lessons
Intermediate
85-page teacher's guide

Produced by Massachusetts Educational Television (21 Inch Classroom) and WGBH-TV, Boston (1967).

From prehistoric times to the technological twentieth century, western man always has expressed his hopes, values, fears, and fancies through the arts. This series focuses on the evolution of art forms, and on the basic elements common to all: rhythm, shape, mood, form, and message. Through diverse artistic languages—music, dance, theater, literature, architecture, sculpture, painting, and photography—viewers come to appreciate the arts as means of communcation, present not only in museums, but also in the familiar objects and experiences of everyday life.

Sonya Hamlin, the television teacher, is an experienced choreographer, performer, television writer, and producer. She has directed dance departments at Radcliffe College and the City University of New York. Ms. Hamlin received an M.A. in Education from New York University and has done graduate study at the Julliard School of Music, Dalcroze School of Eurythmics, Colorado College, and the Connecticut College for Women.

LESSONS

1. **Introducing**—Music, dance, theater, literature, architecture, sculpture, painting, and photography, as the languages artists used to express experience and emotion. (28:03)
2. **Shape and Line**—Considers the shape of straight lines and curved lines in architecture, painting, music, and dance. (28:45)
3. **Rhythm**—Explores rhythm as the artist creates it and as the audience responds to it in architecture, painting, and musical composition. (28:13)
4. **Form**—Investigates the inner structure of a work of art and illustrates how material influences form. (28:43)
5. **Content**—Demonstrates through a fable, a mime performance, and sculptured lions from different periods, how an artist's meaning can be discovered. (28:56)
6. **You Decide**—Proposes three basic steps in evaluating art works, a general view, a specific view, and a conceptual view. (28:45)
7. **It's All Around You**—Looks at common things and shows how art transforms them into beautiful, meaningful experiences. (29:00)
8. **Since Man Began**—Relates how primitive peoples embody their hopes, fears, and flights of imagination in artistic works. (28:55)
9. **Greece**—The Greek ideals of proportion and balance are examined in pottery, sculpture, and legends of the Golden Age. (28:38)
10. **The Middle Ages**—The mysticism, anonymity, and superstition of the period are illustrated by an illuminated prayerbook, a suit of armor, and a Gothic cathedral. (28:30)
11. **The Renaissance**—Renaissance Man's desire and ability to explore and change his world as shown in a Commedia dell'Arte scene, in examples of Italian painting, and in the inventive designs of da Vinci. (29:18)
12. **The Age of Baroque**—The correlation between lifestyle and its expression in art is highlighted by an investigation of the splendid and opulent architectural style of Versailles. (28:33)
13. **The Romantic Age**—This period's quest for individuality is expressed by its poets and musicians in their artistic response to nature and portrayal of emotions. (28:52)
14. **The Twentieth Century**—Modern art is explored as a reflection of the achievements of technology and the search for new insights. (28:33)
15. **America Now**—Considers art forms representative of our age—Op and Pop art, structural sculpture, electronic music, and experimental film. (28:45)

The MeTooShow

Four 20-minute color lessons
Primary
4-page combination teacher's guide and fact sheet

60-minute teacher-parent program

Produced by Three-Prong Television Productions in cooperation with the Erikson Institute for Early Education in Chicago, with grants from the Harris Foundation and the Corporation for Public Broadcasting (1970).

Just sitting down can be a lively experience—if you do it like a monkey or a kangaroo, if you choose a unique chair (like maybe a fire hydrant), if you're playing a sitting-down game. This series of four programs is designed to stimulate just such curiosity and active, imaginative play in preschoolers. Moving through fantasy and reality, the series looks at rain, at city streets, at animals, and at games and activities, with follow-up suggestions for use in the classroom or at home.

LESSONS

1. **If I Were an Animal**—Children invent ways of expressing the movements and sounds of their favorite animals. (19:41)
2. **Sit Down!**—Sitting down becomes a lively experience when children imitate different sitting styles of animals and people. (19:29)
3. **Water Is Wet**—A rainy day inspires children to imagine "watery" fun—from paper sailboats to mud-pie baking. (19:34)
4. **Where Does My Street Go?**—Children discover that a walk down the street can be a magical journey of constantly changing sounds, shapes, and moods. (19:30)

Metrify or Petrify

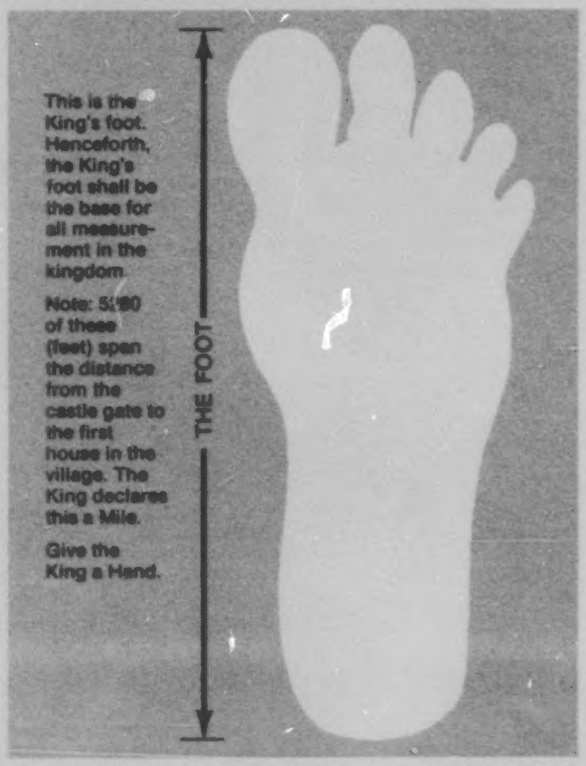
Eight 30-minute color lessons
Teacher in-service
Viewer's guide

Produced by KLCS-TV, Los Angeles, for the Los Angeles Unified School District and The California State University and Colleges (1975).

This series introduces SI Metrics (Système International d'Unités—The International System of Metric Measurement Units), the system of measurement that is gaining support in the United States. The course is designed to develop an awareness of all units of SI metric measurement and a working knowledge of many of those units.

LESSONS

1. **An Introduction to Metrics**—Explores broad-gauged metric concepts. (28:30)
2. **Linear Measurement**—Defines linear metric measurement and introduces the first derived unit. (28:34)
3. **Area Measurement**—Examines area concept and measurement in the metric system. (28:30)
4. **Volume Measurement**—Considers volume concept, volume measurement, and capacity measurement in the metric system. (28:36)
5. **Mass vs. Weight**—Defines mass and explores the measurement of mass in metric units. (28:10)
6. **Temperature**—Deals with the measurement of temperature, heat, and heat energy in metric units. (28:23)
7. **Time—And Additional Derived Units**—Explores time, velocity, acceleration, force in newtons, and pressure in pascals and exposes the entire range of base and derived SI metric units. (28:11)
8. **A Decision Whose Time Has Come**—Provides an overview of metric units of measurement, extends the prefix lineup to its present limits, and shows part of a day in metric America. (28:30)



Natural Science Specials

Fourteen 20-minute color lessons in two modules
Intermediate
6-page combination teacher's guide and fact sheet

Produced by UNIT Productions, Salt Lake City (1973).

Filmed in the Western United States, with its varied environments and spectacular geological formations, this series captures the grandeur of mountain peaks and plunging canyons, and the dignity and tenacity of animals and plants struggling to survive in a world of constant change. Some of the programs, like those on glaciers and fossils, focus on how the earth and its creatures have developed and changed over millions of years. Others, like those on mountain water and bighorn sheep, stress man's need to concern himself with the environment. The series can be used to support the regular curriculum or as a special interdisciplinary unit of study.

Producer-director: Dean Bradshaw.

LESSONS

Module Blue

101. **Canyonlands**—Discusses the prehistoric events that created the Canyonlands, a world of cliffs and canyons, continually reshaped by wind and water. (18·25)
102. **The West: Land of Many Faces**—Focuses on the topography, beauty, and geologic history of the five physiographic provinces that make up America's western uplands. (12·57)
103. **Volcanoes: Vulcan's Forge**—Explores the development of volcanic eruptions, shows island chains formed by volcanic activity, and demonstrates uses for volcanic materials. (18·05)
104. **Fossils: A Book from the Past**—Explains how fossils are formed, where they are found, and what they tell us about prehistoric life on earth. (18·01)
105. **The Great Salt Lake: America's Inland Sea**—Discusses the economic and industrial activity around the lake and speculates on its future as a recreational area. (18·03)
106. **Mountain Water: A Key to Survival**—Deals with the management of water in mountain regions, including dams, reservoirs, treatment plants, and the process of terracing. (15·51)
107. **Pond Succession: A Circle of Life**—Traces the history of a pond, from the creation of a basin to its disappearance, as sediment causes the pond to become more and more shallow. (16·25)

Module Green

201. **Glaciers: Nature's Big Bulldozers**—Studies the development of glaciers and land formations resulting from glacial movement. (17·51)
202. **Mountains and Mountain Building: Nature's High Rise**—Explores various kinds of "mountain building," and considers the theories of isostasy and continental drift. (18·54)
203. **Lake Bonneville: History's High-Water Mark**—Creates an evolutionary picture of this prehistoric lake, including the explorers and geologists who have studied its shoreline and fossils. (18·18)
204. **Dinosaurs: The Thunder Lizards**—Studies fossils and visits the Dinosaur National Monument to view reconstructions of these Mesozoic lizards. (19·25)
205. **Marshlands: Where the Action Is**—Examines the interrelationships and interdependencies of plants and animals within the marsh community. Suggests improving marshland management. (19·25)
206. **Plant and Animal Life Distribution: The Natural World**—Examines factors that influence plant and animal growth and distribution. Visits different geological regions where various forms of life flourish. (18·01)
207. **The Desert Bighorn Sheep**—Traces the forced migration of the bighorn from the grasslands to the canyon slopes. Emphasizes the need to preserve both desert and Rocky Mountain bighorns. (13·43)

1977

Thirty-two 20-minute color lessons
Intermediate, junior high

Produced by Georgia Educational Media Service, Georgia Department of Education (1976).

This weekly contemporary affairs series presents issues and events of relevance to students at the middle and junior high school levels. The programs are intended to develop in students a critical approach to the study of contemporary affairs and to help them become more skillful in analyzing the issues that affect their lives.

Each program focuses on a single topic: a host-commentator discusses the issue in detail, sometimes presenting various sides of a controversy. When appropriate, documentary film footage, graphic illustrations, and interviews with experts are used to explore the subject more thoroughly. Typical of the subjects are these from past series—TV violence, the jury system, marriage, divorce, women's rights, the food crisis, My Lai, space exploration, the right to privacy, money and sports, and the sea. Among the topics to be presented this year are government regulation of auto safety, TV news, organized sports, mariners, and modern vigilantism. A synopsis of the content of each program is sent in advance of the program itself.

This series was recently awarded an Emmy in the Best Children's Program category by the Atlanta Chapter of the National Academy of Television Arts and Sciences. It is a past winner of an Ohio State Award for educational television programming.

Once Upon a Town

Fifteen 20-minute color lessons
Primary, intermediate
Teacher's guide

Produced by Maryland State Department of Education (1977).

ONCE UPON A TOWN explores literary selections that deal with universal themes—self-discovery, social issues, the relationship between the human world and the animal world, and fantasy versus reality. Each lesson examines one of these concepts with the congenial assistance of four characters. Appearing two or three at a time, David, Charlee, Nancy, and Carolyn contribute variety and flexibility to each lesson by sharing their experiences. The overall intent of the series is simple but important—to give students the skills and encouragement needed to read and to enjoy reading.

LESSONS*

1. **Who Am I?**—Self discovery as a part of growing up.
2. **Where Do I Live?**—The affect of geographical, cultural, and environmental settings on the way people live.
3. **Is My Way Better?**—Conflict and its resolution as a function of adjustment, compromise, and maturity.
4. **It Makes Me Laugh**—The importance of humor in fact and fiction.
5. **Hobbies Happening**—Personal interests as important avenues of self-development.
6. **Because I Am Different**—The positive and negative aspects of feeling alone.
7. **Scare Me!**—The excitement of fantasy and the supernatural.
8. **Me Alone, On My Own**—Personal problems and the need to face them.
9. **All Kind of Animals**—The special relationship between humans and their pets.
10. **Mind and Muscle Power**—Physical health and discipline as crucial to achievement in many fields.
11. **Earth Care**—Ecology as a social issue that affects us and is affected *by* us.
12. **How Do I Do It?**—A variety of books to stimulate leisure-time activities.
13. **Caring and Sharing**—Trust, understanding, and the common bonds among people.
14. **Beyond Words**—Nonverbal communication in art, music, ballet, mime, and film.
15. **A Matter of Time**—Adventures in time and space, and a look at the world of tomorrow.

*Times for programs in this series were unavailable at the time of publication.

Other Families, Other Friends

Thirty-two 15-minute color lessons
in four modules
Primary
79-page teacher's guide
Produced by WVIZ-TV, Cleveland (1971).

Trips to a Cree fishing camp in Quebec, a Bedouin tent in Israel, a wooden shoe factory in Holland, a coffee plantation in Nicaragua—these are a few of the adventures viewers will share as they meet and learn about families in fifteen foreign lands, plus our own state of Maine. Each program emphasizes the influence of culture, climate, and terrain on the lives of families at home, at school, at work, and at play. Famous landmarks of the past and present provide a background, but the focus is on people and their rich and varied heritage.

Ruth Kotila, teacher for the series, is the teacher-producer of several field trip series, including EXPLORERS UNLIMITED, a companion course. Ms. Kotila has developed lasting friendships with many of her television families. She corresponds with them regularly and encourages the student viewers to correspond with them, too.

LESSONS

Blue Module

MAINE

101. **Steve & Kathy & Al**—The Thibodeau family of Five Islands, Maine. (14:30)
102. **"Said the Whiting to the Snail"**—The process of commercial fishing. (14:30)
103. **Lobsterman**—How to catch, cook, and sell lobster. (14:29)

MEXICO

104. **A Long Way from Home**—A visit to Acapulco and Teotihuacán. (14:27)
105. **Maria and the Coconuts**—Mexico City, Tula, and Taxco. (14:28)

ARUBA

106. **Little Dutch Island**—Unusual features of the island Aruba. (14:30)
107. **Bon Bini**—An evening of music. (14:30)
108. **Visit to Aruba**—White sand beaches, and a sunken ship viewed through a glass-bottomed boat. (14:30)

Green Module

LONDON

201. **Amanda**—Family life in suburban Beckenham. (14:30)
202. **Amanda's Adventures in London**—The Thames River, the Tower of London, Big Ben, and the market in Petticoat Lane. (14:30)

QUEBEC

203. **Watchia**—Family life on Cape Jones. (14:30)
204. **The Weather Is Out**—Cree culture on Cape Jones. (14:30)
205. **School Days**—A tour of carpenter, guide, and cooking schools established by the Canadian government. (14:30)
206. **Jane and Suzanne**—Plant, animal, and social life of the Cape. (14:30)

HAWAII

207. **Aloha!**—Treasures from the sea on Honolulu beaches. (14:30)
208. **Land of the Pineapple**—A pineapple field, a sugar cane field, and the Polynesian Cultural Village. (14:30)

Red Module

GREECE

301. **Vassilis of Athens**—The ancient Palace of Knossis on Crete and modern Athens. (14:30)

TURKEY

302. **City of 500 Mosques**—Explores the Blue Mosque and a five-hundred-year-old castle. (14:31)

ISRAEL

303. **Shalom Aleichem**—A Roman fortress, a Bedouin family, the Dead Sea, and a modern kibbutz. (14:30)
304. **Jerusalem the Golden**—Modern skyscrapers and ancient ruins of Jerusalem. (14:30)

EGYPT

305. **The Gift of the Nile**—A camel ride from Cairo to the pyramids. (14:30)

HOLLAND

306. **Windmills and Wooden Shoes**—A tour of Madurodam, a windmill, and a wooden shoe factory. (14:30)
307. **Monique of Amsterdam**—A visit to the Anne Frank home and a diamond polisher at work. (14:30)

FRANCE

308. **A Little Bit of Paris**—Notre Dame Cathedral, Montmartre, and the Eiffel Tower. (14:30)

Brown Module

ICELAND

401. **Land of Frost and Fire**—The Icelandic countryside. (14:30)
402. **City of the Smoky Bay**—Contemporary culture and the Arbaer Folk Museum in Reykjavik. (14:30)

JAMAICA

403. **Island in the Sun**—Kingston, Spanish Town, and Dunns River Falls (14:27)
404. **Out of Many, One People**—Preparations for Christmas—a fair and a concert. (14:28)

PANAMA

405. **Crossroads of the World**—The Panama Canal, ancient ruins, and the Bridge of the Americas. (14:30)
406. **At Home on San Blas Island**—Traditional costumes, needlework, and occupations of the Cuna Indians. (14:30)

NICARAGUA

407. **Land of a "Kapriska Purara"**—A park, a market, and the Presidential Palace in Managua. (14:30)
408. **Nicaraguan Countryside**—Lava fields, an Indian settlement, and a coffee plantation. (14:30)

Picture Book Park

Sixteen 15-minute color lessons in four modules
Primary
27-page teacher's guide

Produced by WVIZ-TV, Cleveland (1974).

Storyteller Ann McGregor, aided by resident poet Wise Willie the Owl, offers warm and interesting reflections on a variety of children's books. Childhood joys and heartaches, whimsy and humor, all have place in PICTURE BOOK PARK, where several special visitors, including an artist and a guitarist, help relate children's literature to the real world. Colorful line drawings and miniature stage settings reinforce each story experience.

Ann McGregor has been a teacher of the primary grades and has worked as an elementary school librarian in Berea, Ohio.

LESSONS

Blue Module

101. Sylvester and the Magic Pebble—*Sylvester and the Magic Pebble* by William Steig. Poetry Selection: "How Many 'Ers' Are You" by Marcie Hans. (14:28)

102. That's Right, Edie—*That's Right, Edie* by Johanna Johnston. (14:18)

103. Bedtime for Frances—*Bedtime for Frances* by Russell Hoban. Poetry Selections: "Questions at Night" by Louis Untermeyer from *Rainbow in the Sky*. "Bedtime" by Eleanor Farjean from *Over the Garden Wall*. (14:32)

104. What Mary Jo Shared—*What Mary Jo Shared* by Janice Udry. (14:27)

Green Module

201. Mighty Hunters—*Good Hunting, Little Indian* by Peggy Parish. *The Mighty Hunter* by Berta Bader. Poetry Selection: "Indian Children" by Annette Wynne from *For Days and Days*. (14:27)

202. Folktales—"The Three Billy Goats Gruff" and "The Three Little Pigs" from *Chimney Corner Stories* by Minton Balch. (14:37)

203. Mice are Nice—*Henry the Uncatchable Mouse* by Sidney Simon. *Frederick* by Leon Lionni. Poetry Selection: "The City Mouse and the Country Mouse" by Christina Rossetti. (14:27)

204. From Japan—*A Pair of Red Clogs* by Massako Matsuno. (14:28)

Red Module

301. Lovable Lyle—*Lovable Lyle* by Bernard Waber. (14:30)

302. Friends—*I Need a Friend* by Shirley Kafka. *My Friend John* by Charlotte Zolotow. *Robbie's Friend George* by Shirley Estes. Poetry Selection: "Doodle-Dee-Do, Find Me a Friend" by Elaine Sobecks. (14:25)

303. Alfred—*Alfred* by Janice Udry. (14:30)

304. Spotty—*Spotty* by Margaret Rey. (14:27)

Brown Module

401. Happy Birthday—*Tree for Rent* by Richard Shaw. *Birthday Presents* by Eugene Fern. (14:24)

402. Zoo—*May I Bring a Friend* by Beatrice DeRegniers. *Zoo, Where Are You?* by Ann McGovern. (14:23)

403. Benjie—*Benjie on His Own* by Joan Lexau. (14:20)

404. Presents—*Ask Mr. Bear* by Marjorie Flack. *Mr. Rabbit and the Lovely Present* by Charlotte Zolotow. (14:25)

Pilgrims to the West

Six 20-minute color lessons
Junior high, senior high
6-page combination teacher's guide and fact sheet

Produced by KLRN-TV, Austin-San Antonio (1972).

A common misconception in American history is the belief that the colonization of the United States began on the Atlantic Coast and moved steadily westward toward the Pacific. This series stresses the multi-directional and multi-cultural settlement of North America; in six dramatic vignettes, it depicts the exploration and colonization of the Southwest by Spaniards, long before the first Massachusetts pilgrim arrived in the New World. The influence of Spanish explorers and Catholic missionaries on American Indian culture also is examined. The series can be used as a companion course to PROJECT: HISTORY.

LESSONS

1. **A Second World**—Focuses on the early confrontations between Indian culture and Spanish culture which resulted in a war lasting over four hundred years. (19:34)
2. **Sailors on Horseback**—Concerns the expeditions of early Spanish explorers who looked for "Cities of Gold" and explored New Mexico and Texas, often lying about what they saw in order to get money for further explorations. (19:32)
3. **Altars on the Sand**—Examines the early role of priests in America, when each Spanish conquest was also a crusade to convert Indians to Catholicism. Priest-explorers often dispelled the tall tales of the earlier explorers. (19:46)
4. **The Fourteenth Colony**—Considers the differences between the Spanish Colonies of the Southwest and the English colonies of the East, and examines the role of the Rio Grande River as a sustaining factor in early colonial development. (19:46)
5. **After Cortez**—Describes Mexico City, as an Aztec cultural center (Tenochtitlan) and as it was destroyed and rebuilt by the Spaniards. (20:00)
6. **Tomorrow Mexico**—Looks at the fading of the Spanish Colonies in North America, the Mexican Revolution, and the legacy of Spanish culture. (20:00)

Primary Art

Thirty 15-minute color lessons
Primary
86-page teacher's guide

Produced by KRMA-TV, Denver, in association with AIT (1969).

This series introduces first and second graders to the meanings and methods of art—by illustrating basic artistic concepts and by presenting a variety of examples and methods for achieving self-expression through art. Young viewers visit artists' studios, museums, and galleries to see works in many different media. They observe art in the everyday environment—in the changing seasons, in houses, in hats, and in the differences in people. The course balances observation and understanding with the making of art by encouraging children to create their own art in follow-up classroom activities.

Julie Sassaman has taught at the primary level in the Denver Public Schools for more than twelve years. She holds master's degrees in special education and in art from the University of Denver.

LESSONS

1. **Color All Around Us**—Considers primary colors, the mixing of colors, and how colors evoke feelings. (13:53)
2. **Follow a Line**—Illustrates how lines make designs and create movement and mood. (14:46)
3. **Shapes**—Shows the characteristics of shape through an investigation of common objects. (14:57)
4. **Meeting Artists**—Visits the studios of a sculptor, a weaver, a potter, and a painter. (14:38)
5. **Paint**—Demonstrates the use of various painting tools and techniques. (14:18)
6. **Paint to Music**—Explains how musical rhythm and movement can be expressed by line, color, shape, and texture. (14:40)
7. **Deep Down**—Discusses the ocean as a subject for the artist. (14:47)
8. **Bugs, Bees, and Butterflies**—Considers insects as a subject for art. (14:30)
9. **Paper**—Examines paper as a versatile medium for the artist and child. (14:45)
10. **Hats**—Looks at how hats are made and used, and examines hats as artistic forms. (14:46)
11. **Cloth, Yarn and Stitches**—Explores stitchery as a medium for creative expression. (14:21)
12. **What Do You See?**—Shows how artists see the same things but from different points of view. (14:21)
13. **Art in Motion**—Illustrates design in motion by examining moving space designs (mobiles). (14:20)
14. **Let's Really Look!**—Looks at patterns and colors in nature and man-made things. (14:22)
15. **Finding Design**—Explains that design is the way things are put together. (14:28)
16. **Crayon**—Demonstrates how crayons can be used in drawing, engraving, and painting. (14:31)
17. **Touch and Feel**—Shows how artists use line, shape, color, and pattern to create texture. (14:42)
18. **Odds and Ends**—Shows how old scraps of wood, plastic, and other materials can be used to make art. (14:36)
19. **Printmaking**—Discusses printmaking and demonstrates some printing techniques. (15:10)
20. **Designers**—An architect, an artist, and an industrial designer illustrate that good design is functional and pleasing. (15.07)
21. **House of Dreams**—Illustrates how architects use imagination in the design of functional buildings. (14.32)
22. **Come to the Circus!**—Considers the circus as a subject of art. (14:37)
23. **Portraits**—Looks at portraits from many eras, and of different styles and media. (14:39)
24. **Puppets**—Shows puppets in performance and explains how people use puppets to tell stories. (14:27)
25. **Changing Faces**—Focuses on the magic of masks and how they can be worn for disguise, play, and protection. (14:07)
26. **Collections**—Examines an art museum, showing a sculpture exhibit, art classes for children, and restoration activities. (14:20)
27. **Fantasy**—Explores the role of the imagination in creating art. (14:10)
28. **From the Earth**—Demonstrates how clay is used to make pottery and sculpture. (14:22)
29. **Animals**—Discusses animals as one of man's favorite subjects for art. (14:30)
30. **Make It Your Way**—Scans art from prehistoric times to the present day. (14:40)

Principles of Behavior
(Psychology I)

Fifteen 30-minute black and white lessons
Post-secondary
6-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

This series considers the complexity of the seemingly simple question: "Why do organisms do what they do?" The course discusses some categories of behavior such as motivation, perception, and learning, and the techniques used to study behavior. It also focuses on principles of behavior central to an understanding of man's purpose, intentions, and goals.

These lectures have been prepared and presented by Professor Bernard W. Harleston, Dean of Faculties, Arts and Sciences, Tufts University; formerly Associate Professor of Psychology, Tufts University.

LESSONS

1. **Doing What Comes Naturally**—Seeks to underscore the various dimensions of behavior and the complexity of the seemingly simple question: Why do organisms do what they do? (29:00)
2. **Putting Square Pegs in Round Holes: The Talents of Man**—Concerns the nature of human talent. Focuses on four basic questions: What is talent? How is talent measured? How do individuals differ in what they can do? How does talent develop? (28:50)
3. **Twixt Choice and Certainty: The High Noon of Behavior**—Focuses on decision-making and conflict—how and why decisions are made. (28:56)
4. **There's More to Vision Than Meets the Eye**—Deals with the selectivity of our perceptions of the world around us. (28:54)
5. **The Habit's Habitat: How We Learn**—Explores the nature of learning. (28:53)
6. **Habits in the Bank: How We Remember and Why We Forget**—Considers what we do with what we have learned. (28:55)
7. **The Nature of Human Motivation**—Attempts to answer two questions: Why do we act at all? Why do we become involved in a particular activity? (28:56)
8. **Getting a Feel for Our Feelings: Our Motives and Emotions**—Explores the relation of our emotions to our motivation and identifies factors that influence the development of each. (28:55)
9. **The Thinking Man's Thought: Problem-Solving and Creativity**—Attempts to analyze the problem-solving process and to relate problem-solving to creativity. (28:55)
10. **The Thinking Man's Thoughts: The Role of Motivation and Curiosity in Thinking and Problem Solving**—Examines the effects of various conditions on problem-solving. (28:40)
11. **The Physiology of Behavior**—Examines features of the nervous system that permit us to process the environment and organize the world. (28:55)
12. **The Nature and Development of Personality**—Defines "personality" and explores various theories of personality development. (28:55)
13. **Personality and Adjustment**—Discusses the problem of relating personality to adjustment. (28:55)
14. **The Individual in Social Relations**—Views social relations as dynamic expressions by the individual of needs to affiliate, identify, and develop. (28:55)
15. **The Control of Behavior**—Directs attention to the dual question: What are the effective techniques for controlling behavior and can we escape being controlled? (28:55)

Project: History

Ten 20-minute black and white lessons
Junior high, senior high
24-page teacher's guide

Produced by KLRN-TV,
Austin-San Antonio (1967).

This series explores ten major themes in American history, from the Quaker "holy experiment" in tolerance to the development of Atomic Age internationalism. In each lesson a combination of still photographs, dramatic vignettes, and narrative helps bridge the gap between the printed record of the present and the living event of the past. The course is intended to generate student questions and class discussion. PROJECT: HISTORY can be used as a companion course to PILGRIMS TO THE WEST.

Glen D. Phillips, host of the series, brings to PROJECT: HISTORY a rare combination of academic and radio-television experience. Currently Assistant Professor of Journalism and Radio-Television-Film at the University of Texas in Austin, he has traveled extensively in Central and South America, the Caribbean, and Canada conducting interviews with leaders in education and government for national broadcast. Mr. Phillips holds a Ph.D. in Radio-Television Journalism from the University of Michigan.

LESSONS

1. **The Colonial Period: William Penn and The Holy Experiment.** (19:55)
2. **The Federal Government: The Whiskey Rebellion.** (19:58)
3. **The Age of Jackson: The Inauguration of 1829.** (19:34)
4. **Manifest Destiny: Fremont in California.** (20:00)
5. **The Reconstruction Era: The Impeachment of Andrew Johnson.** (20:02)
6. **The Age of Corruption: Boss Tweed.** (19:56)
7. **America—World Power: "I Took Panama."** (19:57)
8. **The Industrial Revolution: Henry Ford.** (20:00)
9. **Riches, Ruin, Recovery: The Three Pied Pipers: Long, Coughlin, Townsend.** (20:03)
10. **Age of the Atom: Senator Arthur H. Vandenberg.** (20:03)

Puppets and the Poet

Four 20-minute color programs
Junior high, senior high
6-page combination teacher's guide and fact sheet

Produced by the Mississippi Authority for Educational Television (1974).

Since the Middle Ages, puppets have portrayed both comic and tragic characters in Western drama. By scaling down the on-stage action, puppet performances can create greater clarity and intensity of focus. This is apparent in PUPPETS AND THE POET, as the National Theater of Puppet Arts presents excerpts from the plays of William Shakespeare. Each dramatic moment is reduced to its essential elements, heightening the beauty of the poet's language and underscoring the impact of his message. From the anguished Lady Macbeth to the malevolent Richard III, puppets sensitively capture the nuances of situation and character, providing an educational and entertaining introduction to Shakespeare's work. Host Carl Davis gives background material on the plays and the Elizabethan period from which they evolved. Carol Fijan and Paul Vincent Davis are the featured puppeteers.

PROGRAMS

1. The opening from *Henry V* . . . the sleepwalking scene from the fifth act of *Macbeth* . . . Richard III's monologue in which he plots his marriage to Lady Anne. (19:38)
2. A scene from the second act of *The Taming of the Shrew* on the often touchy subject of courtship and marriage. (19:26)
3. The "Dumb Show" scene from *Hamlet* (Act III, Scene II). (19:23)
4. The conclusion to the scene from *Richard III* presented in the first program: Richard's wooing of Lady Anne. (19:40)

Readers' Cube

Fifteen 20-minute color lessons
Intermediate
Teacher's guide

Produced by Maryland State Department of Education (1977).

This series concentrates on developing selection skills and a positive attitude toward reading. The programs present dramatizations of literary works that deal with universal feelings and experiences. Among the themes are those of self-awareness, personal concerns, social concerns, human relations, environmental education, and career education. Included also are interviews with authors and illustrators that give students a better understanding of the creative process.

LESSONS*

1. **The Me of the Moment**—The search for self-knowledge and self-understanding.
2. **My World**—The community and how it influences the lives of its people.
3. **The Trouble With Life**—Conflict as part of the experiences of life.
4. **A Touch of Humor**—Humor as a mode of perceiving, and the underlying seriousness of some humor.
5. **One Can Be a Lonely Number**—People who are alone, by choice or circumstance.
6. **Something To Do**—Personal interests and their contributions to growth and development.
7. **Sorcerers! Spells! Suspense!**—Finding pleasure in ghosts, witches, and eerie settings.
8. **Troubles and Triumphs**—The universal problems that people share.
9. **Under the Sky**—The interdependence of people and nature.
10. **Winning Combination**—Success as a combination of mind and muscle.
11. **The Scene Now**—How involvement in social issues can effect change.
12. **Here's How**—Leisure-time activities that may lead to career choices.
13. **Be a Friend**—Friendship and the traits that inspire trust.
14. **Dimensions**—Today's fantasy and tomorrow's reality.
15. **Without Words**—Images without words in art and music.

*Times for programs in this series were unavailable at the time of publication.

79

Ready? Set... Go!

Two courses—each consisting of thirty 20-minute black and white lessons
Primary
105-page teacher's guide for Level I
134-page teacher's guide for Level II

Four 30-minute teacher programs

Produced by AIT at WHA-TV, Madison (Level I—1969) (Level II—1970).

These courses, developed by leading physical educators and reflecting current trends in the field, teach basic movement as a foundation for effective body control. The courses are designed to be used in sequence. At level I, the lessons guide children in exploring and discovering how the body moves, what the body does, where the body moves, and the various relationships involved in movement. At Level II, this basic knowledge is refined and extended. READY? SET . . . GO! also engages children in intellectual processes: problem solving, inquiry, and the learning of concepts. It emphasizes the development of the individual child as he derives satisfaction from accomplishing tasks he has set for himself and from devising effective patterns of movement.

Jane Young, an elementary physical education teacher in Middletown, Ohio, public schools at the time this series was produced, is now a member of the faculty of the University of South Florida. Ms. Young also has taught at the Bishop Strachan School for Girls in Toronto, has been director of athletics and physical education at the University Settlement of the University of Toronto, and has lectured for the Ontario Board of Education.

Consultants: Dr. Kate R. Barrett, associate professor at the University of North Carolina, Greensboro; and Dr. Bette J. Logsdon, professor at the Bowling Green State University, Bowling Green, Ohio.

Lesson Numbers and Times

Level I	Level II
1. (19:26)	1. (19:34)
2. (19:30)	2. (19:33)
3. (19:29)	3. (19:41)
4. (19:32)	4. (19:50)
5. (19:20)	5. (19:38)
6. (19:27)	6. (19:40)
7. (19:03)	7. (19:33)
8. (19:35)	8. (19:38)
9. (19:37)	9. (19:42)
10. (19:31)	10. (19:53)
11. (19:32)	11. (19:50)
12. (19:22)	12. (19:42)
13. (19:27)	13. (19:26)
14. (19:20)	14. (19:44)
15. (19:21)	15. (19:38)
16. (19:34)	16. (19:25)
17. (19:22)	17. (19:36)
18. (19:26)	18. (19:37)
19. (19:25)	19. (19:24)
20. (19:29)	20. (19:28)
21. (19:34)	21. (19:40)
22. (19:33)	22. (19:31)
23. (19:30)	23. (19:31)
24. (19:10)	24. (19:30)
25. (19:52)	25. (19:38)
26. (19:50)	26. (19:33)
27. (19:30)	27. (19:42)
28. (19:32)	28. (19:30)
29. (19:39)	29. (19:22)
30. (18:54)	30. (19:29)

Rights and Responsibilities

Eleven 20-minute color lessons
Junior high, senior high
16-page teacher's guide

Produced by WHRO-TV, with funds provided by the Commonwealth of Virginia (1975).

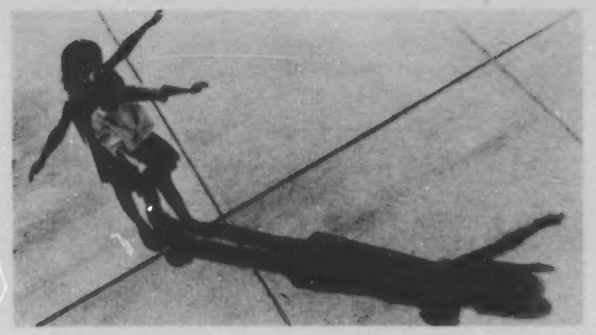
Available on videocassette.

This series examines the duties and the privileges of the individual in a free and stable society. Case studies and examples of real situations help young people understand the complex legal interplay of privileges, obligations, and limitations inherent in citizenship. The lessons deal with rights and responsibilities in the school, at work, and in society as a whole. Winner of San Francisco State University Broadcast Media Award, 1975; and SECA Certificate of Merit, 1975.

LESSONS

1. **I Didn't Care**—Larry, an ex-convict, tells the true story of his life from age nine to nineteen. He discusses his law violations and his attitude toward his parents and school. (19:59)
2. **Dead Path**—Larry continues his story, relating his experiences from the time of his arrest for common-law burglary, through his stay in jail, to the day he was sentenced in court. (19:55)
3. **Change**—Larry recalls the five years spent living and working at Southampton Correctional Farm, and tells how he changed from a person full of bitterness to a young man eager to live responsibly in a free society. (20:11)
4. **An Interview with Larry**—Four junior high school students question Larry about his past experiences and his present feelings. (19:49)
5. **Police Officer**—As a part of their daily routine, two truant officers cruise the city and record daily encounters with juveniles involved in burglary, truancy, a marijuana violation, and driving without a license. (19:35)
6. **An Open Mind**—Student comments about police and laws in general are contrasted with the thoughts of three police officers as they work through their daily routines. (19:38)
7. **In-School, Part 1**—After a kinestatic treatment of social changes that have affected students from 1914 to the present, an administrator, teachers, and students express themselves on issues of truancy, due process, and corporal punishment. (19:43)
8. **In-School, Part 2**—Point-counterpoint is heard from students, teachers, and an administrator on the issues of smoking, assault, dress, privacy of lockers, student records, vandalism, and anti-authoritarian attitudes. (19:35)
9. **At Work**—Four young people, an apprentice welder, a machinist apprentice, a photo-offset trainee, and a young man who has held many different jobs, talk about work experiences and express feelings about work. (19:29)
10. **Sign Here**—This examination of contracts considers types of contracts, contracts and minors, implications of reaching the age of majority, credit and commercial employment contracts, wage garnishment, and the marriage contract. (19:00)
11. **The Voting Machine**—Film segments showing a young person registering to vote and using an electronic voting machine precede a question-and-answer session between students, a professor of political science, and the chairpersons of the local Democratic and Republican parties. (19:45)

Ripples



Thirty-six 15-minute color lessons in six modules
Primary
Discussion leader's guide

36-page teacher's guide
Three 30-minute teacher programs

Developed through the resources of a consortium of thirteen agencies, organized and managed by AIT. Produced for AIT by NVETA, Annandale (1970).

Available for purchase on film and videocassette.

"Like a pebble dropped into still water that sets the water gently swirling, each encounter in RIPPLES sets a child's thoughts and feelings in motion, sparks his curiosity and interest in himself and his world . . ." Unique in its approach to learning, the series presents a variety of encounters intended to develop a child's aesthetic feelings and human values, his sense of inquiry, his ability to cope with change, and his capacity for creating and understanding relationships. Winner, Ohio State Award, 1971.

Chief Consultant: Rose Mukerji, Brooklyn College of the City University of New York. Other consultants: Milton E. Akers, National Association for the Education of Young Children, Bertha Campbell, New York State Education Department; and Elizabeth Ann Liddle, Wheelock College.

LESSONS

Module Blue

101. Going to the Hospital—Chris is taken to the hospital where he is treated by understanding adults. (14:35)

102. Overnight at the Hospital—Chris learns to swallow a pill, and to cope with loneliness at night. (14:35)

103. You're It!—Visiting an art museum, seven-year-olds learn to "feel" with their eyes. (14:15)

104. Talking around the World—American children share games, food, and music with foreign children. (14:25)

105. Fire!—A rookie fireman handles a pumper and hose in a training drill and at a fire. (14:35)

106. Caring for the World—The balance of nature can be restored and maintained if *everybody* begins caring. (14:30)

Module Green

201. Checkup—While the doctor gives him a check up, Jeffrey remembers how a mechanic checked the family car. (14:25)

202. Eyes and Lenses—Special lenses allow the eye to see beyond its natural limits. (14:13)

203. Friends—Children describe "being friends" in terms of their own experiences. (14:25)

204. Millions of Pies—Machines illustrate specialization in automation. (14:20)

205. People Make Music—Music springs from the activities and feelings of people. (14:31)

206. Body Talk—Children explore how body talk can express familiar emotions. (14:25)

Module Red

301. I Found It—Four friends view art made from "found" materials. (14:38)

302. Movement—A child, an athlete, and a dancer express the excitement of human movement. (14:27)

303. Take a Good Look—A magnifying glass helps Lynn discover the richness of her bare toes. (14:07)

304. Out to the Moon—NASA films and models help explain survival needs, rocket stages, and weightlessness. (14.25)

305. Going Home to Earth—John Bannister of NASA demonstrates equipment used [illegible] the moon. (14:35)

306. Dad and I—Steve and his father enjoy an afternoon of fishing. (14:46)

Module Brown

401. How Do You Know?—A NASA physicist discusses scientific thinking. (14:15)

402. Shadows—Children explore shadows—outdoors, on a wall, and as a set for a play. (14:17)

403. To Make a Dance—A dancer experiments with different ways to clap, turn, and skip. (14:40)

404. 55 To Get Ready—Five people working together prepare a jet for flight. (14:20)

405. How Did I Get To Be Me?—Tommy wonders how it would be to live somewhere else and in a different family. (14:25)

406. Sounds of Myself—Children discover that their own bodies can be used to tell a story. (14:50)

Module Yellow

501. All By Myself—Susie bakes a birthday cake for her four-month-old puppies—all by herself. (14 31)

502. Rhythms from Africa—The African Heritage Dancers and Drummers introduce tribal chants and African instruments. (14:32)

503. Seeds—Through time-lapse photography, viewers see a lima shoot out roots, stem, and leaves. (14:20)

504. Hands—Man's hand is different from a hoof or a paw because a man can do and "say" things with his hands. (14:26)

505. Feeling Spaces—A meadow and a cathedral help Andrew and Susie understand how spaces influence feeling. (14:18)

506. Animals Need You—A sick elephant? . . . a homeless hippo? These situations are explored on a visit to the zoo. (14:30)

Module Orange

601. Touching the World—Children explore feeling with their fingers, toes, and skin. (14:30)

602. Playing Where You Are—In winter some children sled down snowy hills, while others play on sandy beaches. (14:30)

603. Lost—At the zoo and lost from his big sister Hilary, Andy pauses to think his way out of the problem. (14:30)

604. How Will I Grow?—Children talk about what it means to be a boy or girl. (14:30)

605. Everybody's Different—The idea that "people are people" is developed through an intermingling of many people. (14:30)

606. How It Used To Be—At an annual folk festival, craftsmen celebrate older ways of doing things. (14:30)

The Science Shed

Fifteen 20-minute black and white lessons
Intermediate
163-page teacher's guide

Produced by the Nebraska Council for Educational Television (1970).

Helping students develop and apply scientific method and critical thinking is the goal of this series. The lessons emphasize the process of data collection, the development of facts and hypotheses from observation, and the application of knowledge in controlling or modifying the environment. Fundamental and functional concepts derived from everyday science are considered in an atmosphere of inquiry, designed to motivate viewers to seek answers through individual experimentation.

The studio teacher for THE SCIENCE SHED is V. T. Miller, science coordinator of the Nebraska Council for Educational Television. He has been a junior high school science teacher and a science coordinator in the Nebraska public schools. Mr. Miller also helped to develop and edit the teacher's guide for the series.

LESSONS

1. **Measurement Topics and Techniques**—Considers the presence of error in measurements and appropriate techniques to minimize it. (14:48)
2. **A Study of a Pond**—Demonstrates skills used to record data, to make inferences about probable causes of the conditions observed, and to make predictions of future changes. (19:51)
3. **A Study of a Stream Valley**—Reconstructs, with the use of a stream table, the probable series of events in the formation of a river valley. (19:47)
4. **Between the Lines**—Demonstrates the use of appropriate scales on a graph to arrange information in a significant pattern. (19:49)
5. **Measuring Time**—Illustrates the necessity for measuring systems that can record information and communicate it to others. (19:50)
6. **Pegboard Balance**—Distinguishes between systems in balance and those not in balance, applies the law of the lever, and demonstrates how to locate the center of gravity of a thin piece of material. (19:49)
7. **Density**—Demonstrates density as a mathematical relationship between weight and volume. (19:50)
8. **Chemical Reactions**—Studies the identification and classification of materials by their properties. (19:50)
9. **Relative Motion**—Explains that motion can be detected and identified only within a specific frame of reference. (19:52)
10. **Planets**—Considers how theories and models that help man understand, organize and explain his universe are based on observations. (19:50)
11. **Heat Transfer**—Determines the relationship of heat and temperature by observing the natural flow of heat energy from regions of high temperature to regions of low temperature. (19:44)
12. **Force**—Demonstrates that all material objects are constantly subject to the actions of various forces. (19:48)
13. **Design of an Experiment—Plants**—Illustrates the design factors of an experiment studying plant growth. (19:48)
14. **Reactions to Stimuli**—Considers how human behavior involves stimuli, impulses, and muscular responses. (19:50)
15. **Hidden Properties**—Demonstrates how to formulate and evaluate a hypothesis, to reject or modify a hypothesis that does not agree with test results, and to make a statement expressing a degree of confidence in a hypothesis. (19:48)

Search for Life

Three 15-minute color lessons
Junior high, senior high

Produced by WHRO-TV, Norfolk, with funds from NASA (1977).

This series acquaints students with the search for life on Mars. Produced before the Viking landing, the three programs discuss the importance of the mission, the equipment and experiments that were to sample life on the planet, and the implications of discovering life on other planets. The series compares life as we know it with what life-forms may be possible on the Martian surface.

Larry Crum, producer of SEARCH FOR LIFE, has been a studio-teacher and producer for the Hampton Roads Educational Television Association since 1968. Stewart Harris, cinematographer for the series, has film credits for more than a hundred projects in instructional and public television. The Crum-Harris team is the recipient of numerous awards for educational and film excellence.

LESSONS

1. **Life?**—Students are introduced to the concept of life as we know it on earth. A number of evolutionary changes illustrate how life has adapted from aquatic to terrestrial conditions, and how certain individuals are able to withstand environmental insults. A description of the environmental conditions on Mars raises questions about life's existence there. (14:27)
2. **Mars: Is There Life?**—This program discusses the topography of Mars—volcanoes, ice caps, stream beds, impact craters, canyons, and wind-eroded surfaces — and speculates about the possible past history of the planet. The Viking lander and its biology experiments are presented in relation to the search for life on Mars. Students are asked to consider life forms that might be able to survive on Mars and the potential significance of discovering them. (14:10)
3. **Mars and Beyond**—This program analyzes the possibility of life in the solar system, from Mercury to Pluto, with emphasis on Mars and the Viking mission. The organic analysis instrument is specifically discussed; how it functions and the implications of its findings. The program also considers the possibility of life elsewhere in the universe. (14:30)

Secondary Developmental Reading

Thirty 25-minute black and white lessons
Junior high
26-page teacher's manual and reading list

Produced by WQED School Services, Pittsburgh (1970).

This series is designed to assist students who are fairly capable readers (those reading at grade level) by reinforcing basic reading skills, developing comprehension in content area reading, and increasing ability in critical and analytical reading. Each lesson also introduces new and related concepts appropriate to the students' maturity and background experience. Consideration of plot structure, character development, various literary forms, and the beauty of language help to expand awareness and increase reading versalitity.

Mary Alice Mikiancie Meli is a teacher of reading, language arts and social studies in Pittsburgh, Pa. She has taught reading and language arts in the classroom and on television. She received her B.A. degree in English from Seton Hill College and has done graduate work at Stanford University, Catholic University, and Duquesne University.

LESSONS

1. **Course Overview** (24:40)
2. **Recognizing Main Ideas** (24:30)
3. **Introduction to SQ3R Study Method** (24:27)
4. **Outlining and Notetaking** (24:30)
5. **SQ3R Method Related to Social Studies** (24:35)
6. **Introduction To Skimming** (24:15)
7. **Library Functions and Skills** (24:37)
8. **Vowel Sounds—Review** (24:24)
9. **Syllabication—Review** (24:24)
10. **Dictionary Skills—Review** (24:10)
11. **Oral Techniques in Reading and Speaking** (24:11)
12. **Skimming Practices** (24:20)
13. **SQ3R Method Related to Science** (24:25)
14. **Fact and Opinion** (24:30)
15. **Drawing Inferences** (24:31)
16. **Following Directions** (24:28)
17. **Introduction to Mythology** (28:30)
18. **Appreciation of American Folklore** (24:00)
19. **Semantics—Connotation and Denotation** (24:35)
20. **Semantics—Vitality of a Language** (24:44)
21. **Introduction to Plot Structure** (24:30)
22. **Plot Structure—Development** (22:47)
23. **Sequence in Sentences** (24:03)
24. **Characters in Literature—Drawing Conclusions** (24:05)
25. **SQ3R Method Related to Mathematics** (24:25)
26. **Appreciation of Poetry** (23:50)
27. **Language of Poetry** (24:14)
28. **Writing Poetry** (24:00)
29. **Techniques of Oral Reading** (24:30)
30. **Motivation for Summer Reading** (20:40)

Self Incorporated

Fifteen 15-minute color lessons
Junior high
36-page teacher's guide

In-service kit
School/Community Awareness Kit
20-page Family Discussion Booklet

Developed through the resources of a consortium of forty-seven agencies, organized and managed by AIT. Produced for AIT by NVETA, Annandale; KETC-TV, St. Louis; UNIT Productions, Salt Lake City (1975).

Rental fees: The complete course is offered at the following rates:

Population	Base Rate	Additional/10,000 students
0-500,000	$1,840.00	$11.50
500,000-1,000,000	$2,070.00	$11.50

over 1,000,000—available on request

Available on film and videocassette.

For related materials, see pages 107-110

This series, planned and developed by leading health educators, learning specialists, and educational broadcasters, is designed to help young adolescents cope with the problems that arise as a result of the physical, emotional, and social changes they are experiencing. Each program is a dramatized exploration of one of the day-to-day problems common to eleven-to-thirteen-year-olds. Taking the child's point of view, the programs deal with topics like peer-group pressure, dating readiness, cliques, privacy, achievement, and ethical decision-making. The open-ended format provides teachers and other adults with an effective means of stimulating youngsters to talk candidly about their concerns, to become aware of the choices available to them, and to understand the consequences of chosen actions. Winner of Red Ribbon, American Film Festival, 1976; and CINE Golden Eagle Award, 1976.

LESSONS

1. **Trying Times** (Making Decisions)—When Meg visits her cousin Julie in the city, she must decide whether to smoke and drink in order to fit in with Julie's group. (14:42)
2. **Who Wins?** (Morality)—Lenny's best negative for a photography contest is destroyed in a scuffle with his competitor, and Lenny must decide whether to submit his second-best, cheat, or give up. (14:47)
3. **No Trespassing** (Privacy)—Alex, who lives with his family in an apartment in the city, is so fed up with his lack of privacy that he takes refuge in an abandoned building. (14:45)
4. **Getting Closer** (Boy-Girl Relationships)—When Greg, shy and anxious about his relationships with girls, finally makes up his mind to ask Laura to dance, Louie whisks her away, and Greg is left alone, embarrassed and disappointed. (14:28)
5. **Down and Back** (Failure and Disappointment)—Terri is bitterly disappointed when she is not chosen as a cheerleader, but she copes with her failures in a reasonable way. (14:34)
6. **Pressure Makes Perfect** (Pressure to Achieve)—At her recital, Nan rebels against parental pressure to excel by playing a short simple piece, banging her fists on the keyboard, and shouting at the audience. (14:56)
7. **Two Sons** (Family Communication)—Because Greg's parents have unconsciously molded him into a "bad boy" and his brother Jim into a "good" one, the family faces a crisis as they ride home from the county jail where Greg has been held. (14:43)
8. **The Clique** (Cliques)—Janet faces a choice when the group she is in demands that she give up some of her independence, including her friendship with Tina. (14:40)
9. **Different Folks** (Sex Role Identification)—Matt Barnum is uneasy and rebellious because his mother provides most of the family income, while he, his father and sister do the housework. (14:45)
10. **What's Wrong With Jonathan?** (Everyday Pressures)—Jonathan angrily explodes at his mother for no reason after a day when everything has gone wrong. (14:30)
11. **Family Matters** (What Is a Family?)—When Andy, a teenaged girl who feels her family is failing her, invites her divorced parents to watch her swim in a race, a series of unpleasant confrontations results. (14:38)
12. **My Friend** (Ethnic/Racial Differences)—Virgil, a young Navajo, and Eddie, a young Caucasian, are best friends until they begin junior high school and each is pressured by his ethnic group to stay away from each other. (14:30)
13. **By Whose Rules** (Systems and Self)—Matt Cole, a candidate for student government president, is suspended from school when he violates the normal election procedures as the principal interprets them. (14:35)
14. **Changes** (Physiological Changes)—David and Susanna are twins who mature at different rates and are uncomfortable with the social aspects of growing up. (14:37)
15. **Double Trouble** (Family Adversity)—Delia's well-meaning family increases her distress about her mother's serious stroke by withholding information and not giving her responsibilities. (14:27)

Spinning Stories

Fifteen 15-minute color lessons
Primary
Teacher's guide

Produced by Maryland State Department of Education (1977).

Gathered on the front steps of a house, children listen to a storyteller who has many interests—among them, music, art, literature, outdoor activities, and crafts. Within an interdisciplinary structure, the series aims to instill in six- and seven-year-olds positive reading habits and desires. It uses a variety of production techniques, including dramatization, animation, and mime. The lessons and literary selections focus on such concepts as understanding ethnic minorities, career education, and the environment.

LESSONS*

1. **I Can, I Can**—Introduces the print and nonprint materials to be used in the series.
2. **That's Me**—Explores through literature the process of developing self-awareness.
3. **Do Something**—Shows how circumstances presented in books are sometimes like those in the student's own experience.
4. **My Feelings**—Presents stories depicting feelings that most young people experience.
5. **Making Moods**—Illustrates a wide variety of moods in literature.
6. **Tell a Tale**—Demonstrates the use of art, music, and drama as forms of storytelling.
7. **It's My Own**—Poses the question of how stories are created, and deals with the concept of authorship and its satisfaction.
8. **Giggles and Grins**—Presents humorous materials—jokes, riddles, cartoons, stories—that use absurdity, exaggeration, caricature, and specialized language to achieve their effects.
9. **Look Around You**—Shows how information can be acquired by observing the places and things in one's environment.
10. **Look It Up**—Focuses on the variety of resources available for the pursuit of special interests.
11. **What's So Different?**—Examines the differences in environment and life-style in various parts of the world.
12. **What To Do**—Shows how special interests may be related to career opportunities.
13. **Bubbles and Beanstalks**—Focuses on types of imaginary characters and situations and how these are created.
14. **Once There Was . . .**—Introduces examples of folklore from various cultures.
15. **Reading On, and On**—Reviews the kinds of print and nonprint material presented in the series, and relates student growth to independence in reading.

*Times for programs in this series were unavailable at the time of publication.

87

Stepping into Melody

Thirty 15-minute black and white lessons
Primary
68-page teacher's guide

Produced by WVIZ-TV Cleveland (1968).

Appealing to children's love of music, these lessons turn natural inclination into musical awareness, appreciation, and performance. Children are invited to act out songs, beat out rhythms, and participate in singing games. The series develops such musical skills as learning song notation, distinguishing the various elements of music, using the singing voice well, and developing pitch-matching skills. It also introduces youngsters to a variety of instruments and compositions, and considers the role of music in Western culture. STEPPING INTO MELODY is an appropriate extension of STEPPING INTO RHYTHM.

Brenda Veal is both a performer and a teacher. She has taught at the University of Cincinnati, and in public schools in Cleveland, Detroit, and Rochester, New York. Ms. Veal is a graduate of Baldwin Wallace Conservatory of Music and holds a Master of Music Education degree from the University of Cincinnati.

Consultants: Betty Jane Lahman, an elementary music specialist in the Shaker Heights, Ohio, Public Schools; and Judith Willour, supervisor of elementary music in the East Cleveland, Ohio, City Schools.

LESSONS

1. **Music High and Low**—Reviews some basic musical concepts (high-low, loud-soft, fast-slow). (14:50)
2. **Quarters and Eighths**—Reviews the concept of high-low through scale wise progressions. Introduces the quarter and eighth notes. (14:28)
3. **"It's My Bone"**—Reinforces the concepts of loud-soft, fast-slow, and high-low. (14:31)
4. **"Baba Yaga"**—Introduces A B A form through Russian music and folklore. (14:06)
5. **"Witches, Ghosts and Goblins"**—A Halloween lesson that reviews A B A form. (15:05)
6. **The Piano**—Acquaints children with the piano and the history of its development. (14:25)
7. **Indians**—Introduces the pentatonic (whole tone) scale and the concepts of melody and accompaniment. (14:45)
8. **Thanksgiving Day**—Reviews the pentatonic scale and melody and accompaniment. (15:10)
9. **The Sixteenth Note (My Fretty Little Miss)**—Reinforces the learning of the pentatonic scale. Introduces the sixteenth note. (14:21)
10. **Why Do We Celebrate?**—Explains the custom of celebrating, through music of many cultures. (14:13)
11. **Christmas Is Here!**—Leads children in the singing and dramatization of songs. (14:30)
12.&13. **Winter Is . . .**—Relates singing, listening, and the creative interpretation of music to the winter season. (14:31 & 14:24)
14. **Music in 2's and 3's**—Develops an understanding of meter in music. (14:31)
15. **Claude Debussy, Composer**—Introduces children to the French composer and his music. (14:30)
16. **Abraham Lincoln**—Acquaints children with the instruments of the marching band. (14:20)
17. **The Organ and the Woodwinds**—Relates the organ and the "wind" instruments. (14:48)
18. **Washington**—Uses patriotic songs to introduce the interval of the third. (14:27)
19. **The Third**—Reviews the third. (15:03)
20. **The Harp**—Introduces the harp and its music. (14:33)
21. **The Piano and the Harp**—Compares the similar construction of the two instruments. (14:30)
22. **Spring**—Introduces the instruments of the "string" family. (14:28)
23. **"Seven Jumps"**—Introduces the grand musical staff. (13:50)
24. **"Skips and Steps"**—Concentrates on directed listening experience. (14:00)
25. **Ring, Bells, Ring**—Relates good music to good art work. (14:34)
26. **Reading Music**—Teaches music reading: the association of musical sounds with written symbols. (14:44)
27. **"The Bridge of Avignon"**—Acquaints children with an "art" song. (14:30)
28. **Hello! (hello!)**—Reviews the concept of the echo. Teaches listening with discrimination. (14:33)
29. **I Love My Rooster (Orchestra or Band?)**—Reviews the songs and concepts learned during the year. (14:36)
30. **Things We Know**—Reviews the instruments of the orchestra and the band. (14:40)

Stepping into Rhythm

Thirty 15-minute color lessons
Primary
56-page teacher's guide

Produced by WVIZ-TV, Cleveland, in association with AIT (1975).

This entirely new production of a successful series is designed to help children discover the joy of music. STEPPING INTO RHYTHM helps children realize that music lives inside and all around them; that rhythm resides in the sounds of home, of the playground, of nature, of the city. Through guided experiences that include rhythm, singing, movement, and a variety of musical styles, students begin to develop musical preferences and to relate music to their own special interests.

Brenda Veal, television teacher, is a graduate of Baldwin Wallace Conservatory of Music and holds a Master of Music Education degree from the University of Cincinnati. She is both a performer and a teacher and has taught in the Cleveland, Detroit, and Rochester, New York, school systems, and at the University of Cincinnati.

Music consultants: Dr. Simon V. Anderson, Associate Professor of Music Education, University of Cincinnati; Betty Jane Lahman, elementary music specialist and teacher curriculum associate; and Sandy Hexter, talent/writer/producer at WVIZ.

LESSONS

1. **Hello Ev'rybody**—Illustrates the contrast between *fast* and *slow* rhythms and encourages children to clap and move as they sing. (14:27)
2. **Things to Do**—Introduces *high* and *low* tones and distinguishes them from *low* and *soft* sounds. (14:28)
3. **Para Diddle**—Associates *high* with small and *low* with large in a story about two drums. (14:26)
4. **Oh, I Saw a Fox**—Demonstrates playing tone bells and singing with various accompaniments. (14:26)
5. **Black and Gold**—Compares *major* and *minor* scales and considers the different qualities of sound in Holloween songs. (14:28)
6. **Autumn Leaves Now Are Falling**—Teaches two songs which children sing with bell set, glockenspiel, xylophone, and metalophone. (13:59)
7. **The Magic Vine**—Encourages children to respond to the parts of a song—words, rhythm, and melody—through body movement. (14:30)
8. **Gracious Blessing**—Introduces the flute and the eighth note through the music of Thanksgiving. (14:33)
9. **Beautiful Home, Sweet Home**—Explores body movement as a vehicle for the creative interpretation of rhythm. (14:25)
10. **My Twenty Pennies**—Introduces the eighth note as a beat and teaches a song with Spanish words in it. (14:18)
11. **Hear the Bells Ringing**—Reviews eighth note rhythm and introduces the ABA form. (14:27)
12. **Merry Christmas**—Introduces hand bells and heralds the Christmas season with favorite holiday songs. (14:26)
13. **Happy New Year**—Celebrates the new year by singing and moving to half, quarter, and eighth note rhythms. (14:24)
14. **Winter Is**—Relates rhythm to winter experiences like shoveling snow. (14:42)
15. **Walkin' Blues**—Continues the winter theme with an ice skating demonstration to 3/4 time and a song in 2/4 meter. (14:48)
16. **The Note Machine**—Invites students to make up their own quarter and half note sounds and to "play" them with the note machine. (14:29)
17. **The Harpsichord**—Introduces the harpsicord and the music of Mozart. (14:25)
18. **Of Thee I Sing**—Teaches patriotic songs and introduces a brass ensemble. (14:36)
19. **Hop Old Squirrel**—Teaches children to recognize changes in the melodic line. (14:30)
20. **Nothing But Sing**—Features a classical guitar and an electric guitar as solo instruments and as accompanying instruments. (14:38)
21. **Country Road**—Introduces folk instruments and folk music, and points out simple two-part form. (14:36)
22. **The Moon Is Coming Out**—Features Japanese music and introduces the music staff. (14:25)
23. **The Violin**—Introduces the violin and visits the string section of an orchestra. (14:18)
24. **A Circle Story**—Sets the growth cycle of plants to music. (14:27)
25. **Major or Minor**—Encourages children to distinguish between major and minor modes through ear training. (14:27)
26. **I Like to Sing**—Illustrates solo, duet, and descant singing. (14:11)
27. **Percussion Family**—Demonstrates a number of percussion instruments. (14:29)
28. **Gerald McBoing, Boing**—Tells the story of a little boy who makes sounds instead of words. (14:37)
29. **City Rhythms**—Focuses on the sounds and rhythms of the city. (14:25)
30. **A Bowl Full of Cricket**—Reviews songs and concepts learned in the series through the sounds and rhythms of nature. (14:26)

Stories of America

Thirty-two 15-minute color lessons
Primary
32-page teacher's guide
Produced by WVIZ-TV, Cleveland, for the Ohio State Department of Education (1976).
Available on videocassette.

This series introduces youngsters to American history from Columbus to Theodore Roosevelt through the medium of storytelling. Some of the stories are purely fictional and are intended to give the flavor of the life style of a period. Others are based on factual events and real people. All are derived from existing children's literature.

The series features Ann McGregor, popular storyteller of the primary literature series PICTURE BOOK PARK.

LESSONS

1. **Our Country's Birthday**—Presents an overview of the events that preceded the signing of the Declaration of Independence. (14:32)
2. **Discover America**—Points out significant events that led to the forming of the nation, from the crossing of the Bering Sea to the first battle against England. (14:30)
3. **America Is Named**—Tells how Amerigo Vespucci studied the heavens, met Christopher Columbus, and became an explorer himself. (14:30)
4. **Pocahontas**—Traces the childhood of Pocahontas, her contributions to Colonial Virginia, and later life in England. (14:30)
5. **Children of the Mayflower**—Tells the story of the famous Atlantic crossing and how the children occupied their time. (14:29)
6. **John Billington and Squanto**—Introduces Squanto as a true friend of the Pilgrims. (14:31)
7. **New Amsterdam**—Relates some of the problems encountered by Peter Stuyvesant and the Indians on the island of Manhattan. (14:28)
8. **Ben Franklin**—Traces Franklin's life, ideas, inventions, and contributions to the development of our country. (14:30)
9. **George Washington**—Spans Washington's life from his early days as a courier to the presidency. (14:34)
10. **Daniel Boone**—Takes a look at how Daniel's first experiences as a hunter prepared him for later wilderness adventures. (14:26)
11. **The Start of War**—Gives a fictionalized account of what life was like on the eve of the Revolutionary War. (14:25)
12. **Needles and Bread**—Presents two stories based on Revolutionary War incidents that show how sewing and baking bread helped the war effort. (14:25)
13. **Indian Summer**—Shows what life was like for the wife and children of a Kentucky frontiersman while he was off fighting the war. (14:27)
14. **The Growers**—Features the contributions of John Chapman (Johnny Appleseed) and George Washington Carver. (14:30)
15. **Lewis and Clark**—Tells how Indian maiden Sacajawea helped the famous explorers cross the Rocky Mountains. (14:30)
16. **Davy Crockett**—Uses puppets to tell a delightful yarn about five-year-old Davy's experience with a pop gun. (14:30)
17. **Robert Fulton**—Illustrates how America's master craftsman developed his early interest in painting and boats. (14:33)
18. **The Oregon Trail**—Spins a couple of adventures of Moses the cat who traveled the Oregon Trail by wagon train. (14:26)
19. **Gretchen Goes West**—Recalls one of the many legends of the Western migration, the story of a lost girl and a white steed. (14:30)
20. **The California Gold Rush**—Presents the story of teenage twins Carlos and Carlotta who catch "gold fever" from hearing about the strike at Sutter's Mill. (14:30)
21. **The Pony Express**—Relates the unexpected adventures of one boy on a Pony Express ride. (14:26)
22. **Runaway Slave**—Tells the true story of the life of Harriet Tubman. (14:32)
23. **The Underground Railroad**—Focuses on the contribution of one young boy to the Underground Railroad. (14:34)
24. **Martin and Abraham Lincoln**—Recounts a Civil War incident involving Lincoln and the son of an Andersonville prisoner. (14:33)
25. **Clara Barton**—Traces Clara Barton's life from her childhood in New England to Civil War battlefields. (14:35)
26. **The Transcontinental Railroad**—Focuses on two Irish immigrants, father and son, who worked on the first transcontinental railroad. (14:31)
27. **Pecos Bill**—Spins a few yarns about Pecos Bill and early cowpunching days in the Southwest. (14:31)
28. **Tom Edison**—Spans Edison's life from his first failing experiment at four to his many adult successes. (14:20)
29. **Annie Oakley**—Tells about the life and marksmanship of the world-famous "Shooting Star." (14:30)
30. **The First Cars**—Presents two stories that show how Henry Ford's dream of an engine that would do the work of horses led to an exciting change in America's life-style. (14:26)
31. **Little Yellow Fur**—Focuses on a young homesteader who makes friends with her Sioux neighbors. (14:32)
32. **Father as President**—Tells an amusing story by Teddy Roosevelt's son Quentin, who felt that his father had only one fault—that of being President! (14:32)

TV Today

Eight 30-minute black and white lessons
High school, college, adult
11-page teacher's guide

Produced by KOGO-TV, San Diego, in association with the University of California, San Diego (1970).

A tour of a radio-television complex, an investigation into the rating game, an examination of commercials, and a look at the history of television news highlight this series. Designed to provide a general background of the broadcasting industry, the lessons enable viewers to understand many of the technical, organizational, legal, commercial, and creative factors at work in the medium.

The writer-producer for this series is the late Burke Ormsby.

LESSONS

1. **Tour of a Broadcast Facility**—Tours a radio-television complex to show how it is staffed and how it operates. (28:45)
2. **TV Programming and How It Grew**—Looks at the industry's history through the 1950's and 60's, and at the question of who watches and when. (29:05)
3. **The Networks and the Ratings Game**—Focuses on the networks and their importance to local stations and examines the federal laws that affect stations and networks. (28:50)
4. **Which Public? Which Interest?**—Considers what people want to see, how a station can best serve its community, what critics say about TV shows, and what organizations say about children's programming. (29:00)
5. **They Don't Make Commercials Like They Used To**—Examines the contents of a commercial, how it is made, and what it costs, and includes an interview with a producer of commercials. (28:55)
6. **The Front Porch Is Steady**—Deals with the technical aspects of television and the common causes of trouble in television sets. (28:40)
7. **What's Going On in the World?**—Explores the history of television news—from the first news broadcast to today's news specials and documentaries. (28:51)
8. **Our Kids Watch, But . . .**—Considers the sociological impact of television. (28:57)

Tell Me a Story

Thirty 15-minute black and white lessons
Primary
61-page teacher's guide
30-minute teacher program

Produced by WQED School Services, Pittsburgh (1966).

This series is a response to the universal plea of young children to TELL ME A STORY. It combines the appeal of the gifted storyteller with the universality of folktales from around the world. The result is a happy introduction to group listening and classic children's literature. Each program finds the storyteller in a setting that suggests the story's time and place: the camera seldom wanders, so that intimacy is retained and young viewers are not distracted from their personal imaginings.

Margaret Hodges, professor at the Graduate School of Library and Information Sciences, University of Pittsburgh, is a well-known author of children's stories. Ms. Hodges holds a Master of Library Science degree from the Carnegie Institute of Technology.

LESSONS

1. **Puss in Boots**—The fortune of a cat can be great, if the cat is clever. (14:31)
2. **Hansel and Gretel**—Two children meet a cruel witch in a gingerbread house. (14:38)
3. **The Cock, the Mouse, and the Little Red Hen**—The Little Red Hen assists her friends in escaping from the fox. (14:32)
4. **Cinderella**—A poor young girl goes to the ball, but her finery lasts only until midnight. (14:35)
5. **The Three Sillies**—The silly behavior of others makes our own mistakes seem less embarrassing. (14:03)
6. **Stone Soup**—The recipe for an amazing soup makes enough for a whole village. (14:48)
7. **Lazy Jack**—The solution to one problem does not necessarily solve another problem. (14:22)
8. **The Shoemaker and the Elves**—An old shoemaker and his wife reward the Little People who help them. (14:47)
9. **The Fisherman and the Genie**—This is the tale of a wily but stupid genie, and a humble but wise fisherman. (14:41)
10. **The Adventures of Pinocchio Begin**—A father loves his child, even though that child is made only of wood. (14:35)
11. **The Blind Men and the Elephant**—To know anything completely is to know all of its parts. (14:45)
12. **My Mother Is the Most Beautiful Woman in the World**—People are not loved for their beauty, but they are beautiful to those who love them. (14:38)
13. **The Fire Bringer**—A coyote helps an Indian boy protect his people from the cold. (14:31)
14. **Dick Whittington and His Cat**—A cat rids Barbary of rats and mice and brings a fortune to his master. (14:40)
15. **Androcles and the Lion**—A slave in ancient Rome receives a reward for befriending a wounded lion. (14:34)
16. **Noah's Ark**—Noah builds an ark and the animals go in, two by two. (14:33)
17. **Jack and the Bean Stalk**—Jack's quick climb to fame and fortune is done on his own magical bean stalk. (14:48)
18. **Gone Is Gone**—A man who wanted to do housework changes his mind. (14:41)
19. **The Brementown Musicians**—Four animals run away from home and come to a little house in the woods. (14:49)
20. **Snow White and the Seven Dwarfs**—A princess hides from her wicked stepmother and finds a home in a wooded glen. (14:58)
21. **Hereafterthis**—This is the tale of an old man's wife who could do nothing right. (14:48)
22. **The Little Girl Made From Snow**—A strange child comes to live with a lonely old couple and then disappears. (14:55)
23. **The Sorcerer's Apprentice**—An apprentice magician encounters problems when he tries to use magic to clean house. (15:00)
24. **The Elephant's Child**—A brand-new elephant goes to the great grey-green greasy Limpopo River, and gets a new nose. (14:30)
25. **The Twelve Dancing Princesses**—A gardenerboy solves the mystery of twelve pairs of shoes that are danced to pieces each night. (14:33)
26. **The Cat and the Parrot**—This is a folk tale concerning a cat with an unbelievable appetite. (14:42)
27. **The Ugly Duckling**—This story tells of the trials and tribulations of a swan hatched in a duck's nest. (13:52)
28. **The Tiger, the Brahman, and the Jackel**—A trusting Brahman is rewarded for his kindness by a sly jackel. (14:41)
29. **The Emperor's New Clothes**—The innocence of a child reveals the pretentiousness of adult vanity. (14:35)
30. **The Wave**—The love of a child and the wisdom of an old man save a village from a tidal wave. (14:49)

A Time of Your Life

Fifteen 20-minute black and white lessons
Intermediate
67-page teacher's guide

17-page administrator's handbook
Two 30-minute teacher programs

Produced by KQED Educational Services, San Francisco (1969).

A TIME OF YOUR LIFE is offered as a ten-lesson or a fifteen-lesson course. The first ten lessons consider interpersonal relationships, self-understanding, and family structure; the concluding five lessons deal with sex education. Designed to help children form a solid foundation for understanding and appreciating their own development, the programs stress individual worth and the need for controlled self-expression. Sex education is included as a natural part of the study of family life.

William H. Ayres, M.D., the television teacher, holds faculty appointments at Stanford Medical School, Palo Alto, and Mt. Zion Hospital and Medical Center, San Francisco. Dr. Ayres completed his pediatric internship and adult psychiatry training at Yale New Haven Medical Center and child psychiatry training at Harvard's Boston Children's Medical Center.

Marilyn McCurdy, an experienced television teacher, has taught in California public schools since 1962. She received her B.A. degree at the University of Southern California and studied guidance and counseling on the graduate level at San Francisco State College.

LESSONS

1. **Who Are You?**—Considers the ways individuals are alike and different. Emphasizes the importance of mutual respect. (20:14)
2. **Who Runs Your Life?**—Relates self-control to freedom in directing one's own life. (19:52)
3. **Decisions, Decisions, Decisions**—Discusses the many bases on which a person may make a decision. (19:56)
4. **How Does a Family Get Along?**—Establishes the naturalness of conflict within a family and the necessity of rules and compromise. (20:00)
5. **Different Kinds of Families**—Discusses the many variations of family compositions. (19:56)
6. **How Do We Get Through To Each Other?**—Considers the many ways we communicate with each other. (20:02)
7. **What Makes a Friend?**—Examines the elements of friendship. (19:09)
8. **Marriage**—Expands the ten-year-old's understanding of marriage to include the commitment of husband and wife apart from parenthood. (19:56)
9. **Being a Boy—Being a Girl**—Discusses masculinity and femininity as part of personality. (19:40)
10. **Time Of Your Future**—Stimulates discussion of sociological and technological changes likely to take place in the children's lifetime. (19:57)
11. **The Male**—Establishes the importance of children understanding how their bodies function and change. Discusses and illustrates the physiological changes of boys at puberty. (19:57)
12. **The Female**—Follows the pattern set in Lesson 11. Discusses and illustrates the physiological changes of girls at puberty. (19:49)
13. **A New Life**—Relates sex biologically, psychologically, and spiritually to marriage. Traces the development of the baby from conception to birth. (19:55)
14. **Questions, Please**—Shows a panel of children asking questions on the subject matter of the three previous programs. (19:57)
15. **Growing Up**—Establishes the concepts that sex can and should be controlled and that sex should be secondary in male-female relationships. (20:20)

The Tune-Up Shop

Twenty 15-minute color lessons
Primary
80-page teacher's guide

Produced by Georgia Educational Media Services, Georgia Department of Education (1974).

Repairman Ben and his amazing Music Machine teach many things, from basic music concepts—grouping steady beats, tempo, dynamics—to the importance of creativity. And they do it in lively, often humorous, and always entertaining ways in lessons designed to complement and expand existing classroom music programs. To explore the magic of music, Ben and his friends occasionally venture away from the shop—to a pirate ship, a circus, and even into a monster-ridden dream. Each lesson uses original music to illustrate and reinforce a single basic concept, and to motivate children to make their own music.

LESSONS

1. **The Sound of Moving**—Promotes attentive listening. (14:30)
2. **Steady, To Beat the Band**—Deals with recognizing and executing a steady beat. (14:30)
3. **Raining Two's and Three's**—Illustrates the ordering of steady beats into groups. (14:30)
4. **Harold's Dream**—Develops the concept of grouping steady beats. (14:30)
5. **Knights of the Earth**—Involves the use of rhythm patterns. (14:30)
6. **Pirates, High and Low**—Deals with high and low points of a melody line. (14:30)
7. **Matches and Candles**—Considers whether or not tones match. (14:30)
8. **Moving Fast and Slow**—Illustrates the concept of tempo. (14:30)
9. **A Tale of Loud and Soft**—Demonstrates the concept of dynamics. (14:30)
10. **The Even & Uneven Bros. Circus**—Presents the concept of even and uneven contrasts. (14:30)
11. **The Secret Message, Part I**—Deals with the rhythm symbols used in music notation. (14:30)
12. **The Secret Message, Part II**—Demonstrates how tone symbols can be recognized on the staff by their relative sound and position. (14:30)
13. **The Secret Message, Part III**—Expands the tone syllable concept by taking up dictation. (14:30)
14. **The Secret Message, Part IV**—Illustrates that combinations of rhythm symbols and tone symbols form notes, which make up melodies. (14:30)
15. **SuperMusicMan**—Illustrates how duration of sounds is determined through the counting of rhythms. (14:30)
16. **Harold's Song**—Emphasizes the difference between composer and performer, band and orchestra. (14:30)
17. **Finding Alike and Different**—Considers the concepts of repetition and change. (14:30)
18. **The Chord-O-Bobble**—Explains chords and illustrates chord changes. (14:30)
19. **Let's Make a Show**—Deals with the importance of creativity in music. (14:30)
20. **The "I Love Music" Show**—Explores the many dimensions of creativity. (14:30)

Two Cents' Worth

Fifteen 15-minute color lessons
Primary
44-page teacher's guide
30-minute teacher program

Produced by the Wisconsin Educational Communications Board and AIT at WHA-TV, Madison (1976).

Using a variety of formats, including dramatizations and documentaries, this social studies series is intended to help children acquire the skills they need to grow into well-informed, effective citizens. Programs introduce fundamental concepts of the major social studies disciplines—history, political science, geography, economics, anthropology, sociology—and relate these concepts to everyday community life. The series illustrates the interrelatedness of all aspects of society and encourages students to draw some conclusions from their own experiences.

LESSONS*

1. **Lost and Found—Spatial Relationships (Geography)**—With help from a mime Tracy and Ronnie learn to locate their favorite carnival rides using spatial directions. (14:29)
2. **Which Way?—Mapping (Geography)**—Free movie passes are the objective of a neighborhood treasure hunt in which two groups of children must interpret and follow simple maps. (13:45)
3. **Changes—Causality (History)**—Sandy's and David's visit to the blacksmith's shop becomes an exploration of the past, as Mr. Thier reminisces about the railroad that once passed through their community. (13:18)
4. **It's Not the Same—Change (History)**—When her family moves back to the old hometown, Erica visits places she once knew and observes many kinds of change. (14:30)
5. **I Need Somebody—Interdependence (Economics)**—Children in a little theater group work together on a lemonade stand to earn money for costumes—all except Lee, who thinks he can make more money working alone. (14:37)
6. **Work, Work, Work—Income (Economics)**—Lisa and Peter pool spending money, piggybank savings, and their earnings to buy a sweater for their father's birthday. (14:30)
7. **Buy, Buy, Buy—Economic Choice (Economics)**—At the shopping center, Lisa and Peter find a way, with the help of a sympathetic clerk, to buy the sweater for their father and a game they want for themselves. (14:51)
8. **We're In This Together—Scarcity and Economic Choice (Economics)**—When Kathy brags about walking home from school to save energy and money, her mother and brother point out how she doesn't always practice what she preaches. (14:34)
9. **Why Can't I?—Laws (Political Science)**—Joel discovers the value of rules and regulations when he plays hooky from school and has a brush with a lawbreaker. (14:35)
10. **Don't Feed the Animals—Law Enforcement (Political Science)**—Sunny and B. G. stop their father from feeding peanuts to the animals after the zookeeper takes them on a tour of the zoo animal hospital. (14:38)
11. **Play Fair—Voluntary Compliance (Political Science)**—When Johnny and his sister Dionne accidently break a window playing baseball, their first impulse is to run. (14:04)
12. **Your Choice—Decision-Making (Anthropology-Sociology)**—Pat decides to go hiking alone rather than help his family set up camp. When he does not return, a search party is organized. (14:48)
13. **What I Like—Spatial Interaction (Geography)**—Deron travels from his city home to his uncle's rural farm and notices how the landscapes, buildings, vehicles, and activities change along the way. (14:32)
14. **Let's Get Together—Culture (Anthropology-Sociology)**—Stuart, a Winnebago Indian, teaches his friend Chris about the colorful ceremonial dances his family does to make a living.
15. **It Belongs To You and Me—Cultural Change (Anthropology-Sociology)**—Sherry is unexpectedly rewarded when she sacrifices the chance to earn a merit badge in hiking to stay with her partner Pam, who is on crutches.

*Times for some programs in this series were unavailable at the time of publication.

Universe and I

Twenty 20-minute color lessons
Junior high
Teacher's guide

Produced by Kentucky Educational Television with assistance from the Kentucky Council of State Science Supervisors, the Kentucky State Department of Education, and NASA (1976).

Student activity sheets are available from the producer. Write Kentucky Educational Television, 600 Cooper Drive, Lexington, KY 40502, for information.

Available on film and videocassette.

Simulations of the universe and space travel, animation, futuristic techniques, drama, comedy, and fantasy make this integration of earth and space sciences an absorbing, stimulating experience for students—and teachers.

The series focuses on earth as a member of the interdependent solar system and of the universe, similar to the other members in origin and composition, governed by the same laws, and undergoing similar processes. Basic science concepts—discovery, perspective, interrelationships, change, balance, development, and application—form threads of continuity through the lessons.

Each program, however, is different in format and treatment. For example: man's survival in a hostile environment is illustrated by actual documentary footage of the 1911-12 Amundsen-Scott race to the South Pole, and position and motion are taught by a brilliantly flashing, futuristic pinball machine. Prominent in the cast are several celebrated actors. Leonard Nimoy appears as a familiar pipe-smoking detective who solves mysteries from his cluttered Victorian flat; Robert Lansing portrays a meteorologist caught in a unique weather event in the New Hampshire mountains; and Jesse White becomes a twenty-first century real estate agent dealing in stars.

LESSONS*

1. **I and the Universe**—A trip through the vastness of space, with views of nebulae, black holes, and binary stars.
2. **Halftime**—A fanciful demonstration of the actions of atoms and molecules.
3. **Jake's Gate**—A look at the use and misuse of natural resources. (17:53)
4. **A Visit to Spectrum II**—An exploration of the electromagnetic spectrum. (16:12)
5. **Star Salesman**—A look at the life cycle of the sun as an example of a main sequence star.
6. **Mind-Slaughter**—A look at the atmosphere of the earth and other planets as oceans of gasses.
7. **Incident of Cannon Mountain**—An adventure in coping with the forces of a unique weather event. (17:30)
8. **Sea Search**—An introduction to the complexity of the ocean and its vast scientific and economic potential.
9. **The Solar System**—A trip through the planets and their moons, with comparisons and questions about the forces that shape their surfaces.
10. **The Ballad of Ramblin' Willy**—A look at the dynamic forces at work on the earth, constantly changing its surface.
11. **The Interior Motive**—A process approach to the study of the interiors of things, particularly the interior of the earth, moon, and other planets. (16:15)
12. **The Atlantis Connection**—A demonstration of the theory of plate tectonics.
13. **Vectoria**—Demonstrations developing the notions that determination of position is dependent upon a point of reference and that all motion is relative to a certain point of view. (16:10)
14. **Luna the Lovely**—An introduction to concepts derived from the theory of relativity.
15. **Gravity Drag**—An introduction to basic concepts concerning the nature of gravity.
16. **Bulletin**—A presentation of the basic principles of orbital mechanics.
17. **The Changing Scientist**—A demonstration of how scientific ideas are formulated, modified, revised, and discarded. (17:25)
18. **City of Fossils**—A look at the way scientists go about reconstructing the origin and development of the earth.
19. **Freezing Point**—A study of the problem of man's survival in a hostile environment.
20. **The Future**—A projection of possible future developments in science and technology. (15:05)

*Times for some programs in this series were unavailable at the time of publication.

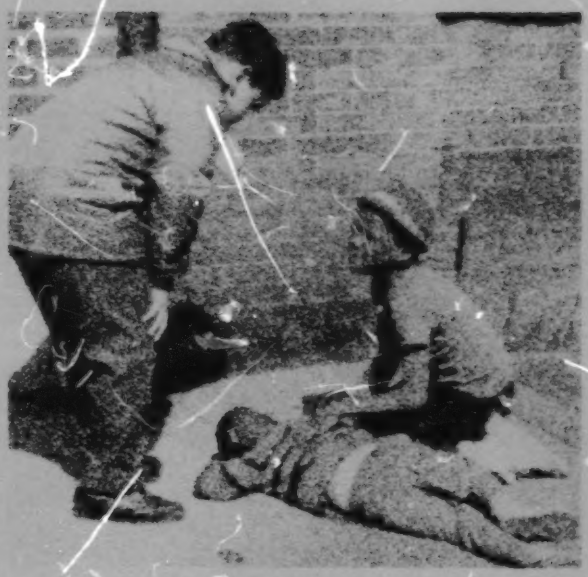
What's My Thing?

Six 6-10 minute black and white lessons
Intermediate
12-page teacher's guide

Produced for Massachusetts Educational Television (21 Inch Classroom) by WBGH-TV, Boston (1971).

For Purchase Only—WHAT'S MY THING is offered on one videotape reel containing all six programs:
Price is $300 plus tape

The series is also available on videocassette.



WHAT'S MY THING? Focuses on the antics and personalities of the Fantastic Six, a group of boys who live in the South End of Boston. The general subject of the series is how children react to various forms of authority. Although the setting of the programs is a city neighborhood, these open-ended episodes can be used meaningfully in urban, suburban, and rural classrooms. Winner, Ohio State Award, 1972.

LESSONS

1. **Don't Walk**—An intersection with a broken traffic light encourages the boys to find different ways to cross the street. (6:39)
2. **Swing**—Two members of the Fantastic Six are playing with a rope swing in the park. When a bully comes along and takes over the swing, one of the boys tries to resist and is hurt. (5:58)
3. **On The Bus**—The boys play a game of catch on a public bus. The driver says nothing until a passenger complains; then he demands that the boys get off the bus. (6:09)
4. **Escaped Cat**—When one of the Fantastic Six rescues a kitten from a window ledge, he falls and is hurt. Possible sources of help are shown quickly, but their responsiveness requires testing. (6:05)
5. **Clean-Up Crew**—The Six join a group of older boys on their way to clean up the park. At the park the older boys try different methods of authority to keep the younger boys at the task. (9:11)
6. **A Find**—The Fantastic Six quickly decide how to divide a package of five doughnuts between six boys—one of them does not get one. (7:44)

Why?

Thirty-two 15-minute color lessons
Primary, intermediate
40-page teacher's guide

Produced by WDCN-TV, Nashville (1976).

Helping students become independent learners by providing practice in solving problems is the goal of this science series. "Why?" focuses on three broad areas—life science, earth science, and physical science—using the investigative approach and capitalizing on the child's natural curiosity and quest for explanations. Special film techniques, such as split screen, help to demonstrate, clarify, analyze, and compare.

Producer, teacher and writer for the series is Faye Carter Wilmore. She taught and developed science programs on the elementary school level before becoming a studio teacher.

LESSONS

1. **Living Things and Their Environment**—Compares different environments and identifies living and nonliving things. (14:50)
2. **The Lawn and Vacant Lot Community**—Examines living things in a lawn and vacant lot community and shows how they interact. (14:46)
3. **A Lake Community**—Describes a lake community and how the inhabitants interact. (14:52)
4. **A Stream Community**—Describes a stream community and discusses the adaptations of living things to flowing waters. (14:50)
5. **A Woodland Community**—Points out the many kinds of living things that thrive in the woodland. (14:50)
6. **A Seashore Community**—Compares the living things in the seashore community to those in a lake or pond community. (14:50)
7. **Animals from Different Environments**—Shows animals that live in different habitats and discusses how an animal's appearance can suggest the type of habitat in which it lives. (14:50)
8. **What Is Air?**—Discusses the properties of air and demonstrates evidence of the presence of air even though it cannot be seen. (14:50)
9. **Air Presses on Things**—Demonstrates several effects of air pressure, using everyday objects. (14:52)
10. **What Happens When Air Is Heated and Cooled?**—Experiments with the contraction of cooled air and expansion of warm air. (14:50)
11. **Light and Heat**—Identifies light sources and discusses how light and heat are alike. (14:50)
12. **Reflected Light**—Explores what happens when light hits various surfaces. (14:50)
13. **Light and Color**—Examines the color properties of light. (14:38)
14. **What Is a Machine?**—Introduces the lever, inclined plane, pulley, and wheel and axle. (14:50)
15. **Lever—A Simple Machine**—Defines the lever and discusses fulcrum, force, and resistance. (14:50)
16. **Pulley—A Simple Machine**—Demonstrates how fixed and moveable pulleys make work easier. (14:54)
17. **The Wheel and Axle—A Simple Machine**—Shows how effort and resistance vary as the relationship of the wheel to the axle is changed. (14:52)
18. **Inclined Plane—A Simple Machine**—Defines the inclined plane, and demonstrates that the screw is a special kind of inclined plane. (14:51)
19. **Wedge—A Simple Machine**—Demonstrates how the wedge increases force. (14:53)
20. **Making Work Easier**—Views complex machines and identifies the simple machines within them. (14:51)
21. **Measuring Distance**—Instructs students in using metric units of measurement: meter, decimeter, centimeter, and millimeter. (14:37)
22. **Measuring Weight**—Introduces common metric units of weight: gram, kilogram, and milligram. (14:30)
23. **Measuring Time**—Discuss the units of time and their relationships. (14:52)
24. **Measuring Temperature**—Compares Celsius and Fahrenheit scales. (14:48)
25. **Static Electricity**—Demonstrates how like charges repel and unlike charges attract. (14:48)
26. **How Does an Electric Current Flow?**—Discusses and demonstrates the materials needed to make electricity travel. (14:48)
27. **Electricity Into Light**—Analyzes the workings of a light bulb. (14:32)
28. **Electricity into Heat**—Introduces resistance as a cause of heat. (14:50)
29. **Electricity into Motion**—Shows how current flowing through an electromagnet produces motion. (14:51)
30. **What the Earth Was Like**—Illustrates ways the earth's surface is constantly changing. (14:50)
31. **How Do We Know?**—Focuses on erosion, the movement of the seas, and the fossil remains of plant and animal life. (14:49)
32. **Fossils Tell the Story**—Discusses how fossils were formed in rock. (14:51)

Word Workers, Inc.

Twenty-five 15-minute color lessons
Primary
58-page teacher's guide

Produced for Massachusetts Educational Television (21 Inch Classroom) by WGBH-TV, Boston (1971).

Larry Lizard, Warty Winnifred, and other alliterative characters help children recognize the relationship between sounds in words and letters in words in this series for beginning readers. Designed to supplement the classroom teacher's instruction in phonics, the course uses techniques compatible with the many different approaches to teaching this subject. Lessons provide drill on letter-sound associations, enlivened by activities such as "Name Game," "Rhyme Time," and "Word Wheels," that make unlocking the language code an entertaining activity.

Louise McNamara, who is also the studio teacher for the series ALL ABOUT YOU, is a former acting director of the Twenty-One Inch Classroom and a former elementary science teacher. She has served as science editor for Ginn & Co. and as consultant to the children's library of Boston's Museum of Science.

Frank Lane has been a member of the staff of WGBH-TV, Boston, since 1968. A native of Boston, he was educated in the schools of that city.

LESSONS

Unit 1: Sounds in words, consonant-vowel-consonant pattern of letters in words

1. Introduction to writing as communication; words in speech, sounds in words; letters in words. (14:35)
2. /s/ and /m/ as initial sounds; *s* and *m* as initial letters, rhyming words with "am" and "it" orally; classroom activities for *b*. (14:36)
3. /l/ as initial sound; *l* as initial letter; rhyming "am" and "it" and associating rhymes with letters. (14:32)
4. /t/ as initial sound; *t* as initial letter; rhyming; classroom activities for *r*. (14:36)
5. /t/ and /m/ as final sounds represented by *t* and *m*; rhyming "at" and "im" words, classroom activities for /k/ represented by *c*, *k*, and *ck*. (14:34)
6. Medial *a* and *i* representing the vowel sounds in "bat" and "bit"; classroom activities for *o* representing vowel sound in "lot." (14:37)
7. /h/ and /p/ as initial sounds, *h* and *p* as initial letters, classroom activities for /g/ represented by *g*. (15:04)
8. Review (15:00)
9. /p/ as final sound represented by *p*, rhyming "ap" and "ip" words; classroom activities for *v*. (14:32)
10. /f/ as initial sound; *f* as initial letter, rhyming, classroom activities for *v*. (14:40)
11. /d/ as initial and as final sound, *d* as initial and as final letter; rhyming "ad" and "id" words; classroom activities for *e* representing the vowel sound in "bell." (14:30)
12. /n/ as initial and as final sound, *n* as initial and as final letter; rhyming "in" and "an" words, classroom activities for *j* and *y*. (14:40)
13. *c* representing /k/ and /s/; *g* representing /g/ and /j/; classroom activities for *u* representing the vowel sound in "bud." (13:39)
14. Review (13:53)

Unit II: Short and long vowel sounds in consonant-vowel-consonant and consonant-vowel-consonants patterned words

15. *a* representing the vowel sound in both "mad" and "made"; rhyming (14:18)
16. *i* representing the vowel sound in both "pin" and "pine"; rhyming; classroom activities for *u* representing the vowel sound in both "cut" and "cute." (14:17)
17. *o* representing the vowel sound in both "rot" and "rope"; rhyming. (14:20)
18. Review of short and long vowels and all consonants. (13:55)

Unit III: Additional initial consonant sounds and letters

19. Digraphs: *th*, *sh*, and *ch*; classroom activities for *ph* and *wh*. (14:36)
20. Blends: *st*, *gr*, *br*, *sp*, *pr*, *tr*, *cl*, *fl*, *dr*, *sl*, classroom activities for *ow*, *bl*, *cr*, *fr*, *pl*. (14:26)
21. Review. (14:32)

Unit IV: Additional vowel sounds and letters

22. Other representations of "long *a*" (*ai*, *ay*) and "long *o*" (*oa*, *oe*, *ow*); classroom activities for *ee* and *oi* and *oy*. (14:20)
23. *ea* as representing the vowel sound in both "head" and "bead"; *ow* as representing the vowel sound in both "cow" and "low"; classroom activities for *oo*. (14:48)
24. *y* as a vowel; *r* following a vowel. (13:26)
25. Review. (14:45)

Words Are For Reading

Ten 10 to 15-minute color lessons
Primary
36-page teacher's guide

Produced by the Mississippi Authority for Educational Television (1972).

Dramatic scenes with strong appeal to children are used in this series to build reading vocabularies and related language skills. Non-sequential lessons include trips to the zoo and the state fair, a day at school, and a look at the daily work of the policeman and the fireman. Words to be taught, chosen from vocabulary lists of standard basal textbooks, appear on the screen frequently and are used in a variety of ways. Original songs reinforce the presentations, which are designed to encourage viewer participation.

LESSONS

1. **Our Friend the Policeman**—Shows policemen directing traffic, helping a lost child, and stopping a speeding motorist. (10:24)
2. **Bicycles**—Follows four boys as they bicycle from a park, to a service station, to the woods. (9:14)
3. **Zoo**—Shows the various ways that different animals move, eat, and sleep. (12:10)
4. **A Day at School**—Shows activities of a school day—a reading lesson, a game of kickball, and the adventures of a rabbit that escapes from his cage. (14:05)
5. **Trees**—Shows the parts of a tree and aspects of its growth, and emphasizes the need for forest conservation. (13:32)
6. **Houses**—Teaches the mechanics of compounding words, and the concept of "home." (11:48)
7. **Fair**—Explores the sights, sounds, smells and tastes a child experiences on a visit to the state fair. (12:20)
8. **One or Two: What To Do?**—Develops the concept of singular and plural nouns through images of brushes, babies, and bubbles. (10:45)
9. **How We Move**—Presents words that describe movement, illustrated by scenes of a football game, an egg race, and a Boy Scout outing. (11:17)
10. **Fireman, Fireman**—Shows the activities and responsibilities of a fireman, from battling a blaze to caring for his uniform and equipment. (14:37)

Wordsmith

Thirty 15-minute color lessons in six modules
Intermediate
24-page teacher's guide

Produced by AIT at KLCS-TV, Los Angeles (1975).

This new production of a popular series is based on contemporary concepts of vocabulary and linguistic theory. Each WORDSMITH program centers on a theme like "food," "size," or "communication." But from then on, anything goes—wordcells cavort about to instruct and entertain, anticked characters get their words in edgewise, word lore of all kinds lights up the nooks and crannies of the English language. Designed to arouse students' curiosity about words and to sharpen their awareness of language, the series includes standard vocabulary development and incorporates terms from specialized vocabularies, foreign languages, and slang.

Bob Smith, wordsmith and author of the teacher's guide, has taught English, philosophy, psychology, education, Latin, and mathematics at levels from the seventh grade to post-graduate study. His television work began in 1962. Mr. Smith holds a Bachelor of Arts degree from the University of Chicago, and three advanced degrees in philosophy and linguistics from Gonzaga University and the University of Michigan.

LESSONS

A conventional accounting of what goes on in a WORDSMITH program can't really do justice to the lively proceedings as Bob Smith conjures up a variety of short features (several of which appear in each program) to stimulate, reinforce, and sustain the attention of the viewer:

MR. HOMONYM has endless problems with the words that sound alike but are not.

MS. HYPERBOLE can't open her mouth without exaggerating.

MR. ALLITERATION'S statements seem strangely similar.

MR. REDUNDANT repeats himself needlessly and in the process becomes twins.

MS. ONOMATOPOEIA offers *splash* and *crunch*—each is a word and a sound too.

THE DEPARTMENT OF USELESS INFORMATION tells more than anyone needs to know about our language.

SUPERWORD takes a light-hearted look at some of our more impressive—and sometimes stuffy—words.

I SAY, YOU SAY reminds us that we do not all speak the same English. Is it quarter to ten, quarter till ten, or quarter of ten?

DOUBLE-TAKE is an eye-opener. Look around you—What do you see? Words and wordcells. Don't take one, take both. That's a double-take. And it's one of the big, big goals of each WORDSMITH lesson.

Module Blue
101. Sound (14:30)
102. Body I (14:32)
103. Body II (14:30)
104. Fire (14:31)
105. Looking (14:30)

Module Brown
401. Nature (14:31)
402. Leading (14:30)
403. Transportation I (14:34)
404. Transportation II (14:30)
405. Position (14:30)

Module Green
201. Numbers I (14:30)
202. Numbers II (14:37)
203. Numbers III (14:35)
204. Walk and Run (14:30)
205. Water (14:34)

Module Yellow
501. Form (14:34)
502. Size (14:30)
503. Talking (14:31)
504. Potpourri (14:31)
505. Food (14:33)

Module Red
301. Time (14:35)
302. Cutting (14:35)
303. Animals I (14:33)
304. Animals II (14:32)
305. Serendipity (14:31)

Module Orange
601. Twist and Turn (14:32)
602. Relatives (14:30)
603. Connection (14:32)
604. Measure and Metrics (14:31)
605. Communication (14:37)

World History
(History I)

Fifteen 30-minute black and white lessons
Post-secondary
10-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

This course presents a comprehensive pictorial overview of world history from the fall of Rome to the Napoleonic Era. It covers the great movements, the men that led them, and the consequences of their work.

The lectures have been prepared and presented by Professor Robert G. Albion, Gardiner Professor of Oceanic History and Affairs, Emeritus, Harvard University; formerly Professor of History, Emeritus, Harvard University.

LESSONS

1. **The Fall of Rome**—Centers on barbarian culture, particularly that of the Franks and Anglo-Saxons. Considers Greeks in Eastern Europe and the spread of Arabs around the Mediterranean. (28:52)
2. **Feudalism and National States**—Discusses how leading warriors received land in exchange for military service to the king, and thereby acquired most of the wealth, power, and prestige in their societies. (28:25)
3. **The Medieval Economy**—Describes the structure and function of the "manor," the principle economic and social unit in the Middle Ages. Notes the revival of trade and the growth of craft guilds after 1000 A.D. (28:56)
4. **The Medieval Church**—Investigates the wide-spread cultural and political powers of the Roman Catholic Church in Western Europe. Considers its eventual conflict with the growth of national states. (28:37)
5. **Exploration and Early Empires**—Discusses the exploring voyages of Vasco da Gama, Columbus, and Magellan in the 15th and 16th centuries. Studies the establishment of colonies and the development of trade by the Spanish and Portuguese. (28:57)
6. **Renaissance and Reformation**—Considers the art and literature of Renaissance Italy. Describes the establishment of Protestant sects in Northern Europe under the leadership of Martin Luther and John Calvin. (28:57)
7. **16th Century Rivalries**—Studies the emergence of England, France, and Spain as strong national states, and considers two powerful empires, the Hapsburg family and the Ottoman Empire. (29:00)
8. **Seventeenth Century Expansion**—Concerns the expansion of trade and colonies by the Dutch, French, and English after the defeat of the Spanish Armada in 1588. (28:50)
9. **The Age of Louis XIV**—Contrasts the growth of the absolute monarchy in France with the defeat of the Stuart kings and royalist supporters by Puritan—Parliamentary forces in England. (28:50)
10. **The Duel for Empire**—Discusses the years between 1609 and 1763, when England and France were at war four times (League of Augsburg 1689-97; Spanish Succession, 1701-13; Austrian Succession, 1740-48; Seven Years, 1756-63). (28:55)
11. **The American Revolution**—Explores the conditions leading up to England's conflict with the American colonies. Reviews the major events of the Revolutionary War. (28:58)
12. **Colonial Changes**—Considers colonial experiences of European countries in the South Seas and Pacific Northwest. Examines British political influence and policy in India and in Canada. (28:55)
13. **The Industrial Revolution**—Examines how the change from handwork to power machinery drastically transformed society, politics, and economic life beginning in the 1760's. (28:55)
14. **The French Revolution**—Describes how a moderate movement for constitutional government and breaking down old privileges grew into a violent and radical revolution. (28:50)
15. **Napoleon and Sea Power, 1798-1815**—Reviews the career of Napoleon Bonaparte from his early victories in Italy, to his unsuccessful invasion of Russia in 1812, to his final exile on St. Helena. (28:47)

World History
(History II)

Fifteen 30-minute black and white lessons
Post-secondary
8-page syllabus

Developed for the U.S. Navy by the Commission on Extension Courses, Harvard University. Produced by WGBH-TV, Boston (1967).

This survey begins with the Peace of Vienna in 1815 and probes the revolutions of 1830 and 1848, which led to reform in England, Italy, and Germany. Also covered are America's westward expansion and Civil War, the rise of capitalism and socialism, imperialism in Africa and Asia, politics before and after the World Wars, the end of empire after the wars, the Cold War and the deterrent power of the Polaris.

The lectures have been prepared and presented by Professor Robert G. Albion, Gardiner Professor of Oceanic History and Affairs, Emeritus, Harvard University; formerly Professor of History, Emeritus, Harvard University.

LESSONS

1. **Reaction and Revolution, 1815-1848**—Describes "the Metternich Era," when European nations reinstated ousted monarchs and for a time successfully suppressed revolutionary movements. (28:55)
2. **The Opening of China and Japan**—Traces Britain's diplomatic and military efforts to open Chinese ports to trade, and America's success at establishing trade relations with Japan. (28:55)
3. **British Reform and Free Trade**—Examines, in Britain, the rise of the capitalist and labor parties to political power, the "humanitarian" policy changes in the British empire, and the transition from old forms of mercantilism to free trade. (28:54)
4. **The Second Empire and Unification**—Describes the period between 1848 and 1870, when France was under the leadership of Napoleon III, and Germany and Italy became unified nations. (28:57)
5. **America's Westward Expansion**—Follows expansionist efforts in the United States, from the extension to the Mississippi after the Revolution to the acquisition of California and the Southwest as a result of the Mexican War. (28:54)
6. **Capitalism, Socialism, and Communism**—Traces the growing influence of private capital, the rise of movements to improve the lives of the laboring class, and the development of "hard core" Communism in Russia (28:54)
7. **The Scramble for Africa**—Follows the sudden expansion of European nations into Africa in the late 19th century. (28:58)
8. **Imperialism in Asia**—Considers the Japanese defeat of China in 1895, the subsequent European take-over of Japanese gains in China, and the Japanese victory over Russia in 1905. (28:55)
9. **Alliance and Entente**—Describes the alignment into two groups of the major powers of Europe between 1897 and 1907: the Triple Alliance (Germany, Italy, Austria) and the Triple Entente (France, Britain, Russia). (29:20)
10. **World War I**—Discusses the armed conflict between the alliances which resulted in a four year seige at the Western Front, German use of submarines against England, and American intervention in 1917. (28:41)
11. **Between the Wars**—Examines the "self-determination" spirit of the Paris settlement, the creation and failure of the League of Nations, and the transformation of Russia into a radical Communist state. (28:28)
12. **World War II, 1939-1941**—Deals with German victories in Europe, the Battle of Britain, the campaign in North Africa, and Hitler's attack on Russia in mid-1941. (28:56)
13. **World War II, 1942-1945**—Deals with the Japanese attack on Pearl Harbor, the major efforts in Europe and the Pacific, the surrender of Germany in 1945, and the Japanese capitulation following atomic attacks on Hiroshima and Nagasaki. (28:50)
14. **The End of Empire**—Considers the breaking up of the overseas empires of Britain, France, Holland, and Belgium into independent nations. (28:35)
15. **The Cold War**—Examines the "Cold War" contest between the United States and Russia: the arms race and the rivalry for political influence throughout the world. (28:55)

Zebra Wings

Fifteen 20-minute color lessons
Intermediate
40-page teacher's guide

20-minute teacher program

Produced by the Mississippi Authority for Educational Television, in association with AIT (1976).

This creative writing course is intended to bring out the creative abilities latent in each child. The series aims to stimulate children to think, to feel, to imagine, — and then to write. The lessons are concerned with style and form in various types of writing—fables, poetry, humor, fiction, newspaper writing, drama. Each program begins with a sight-and-sound experience related to one or more pieces of writing. A variety of techniques are used, such as film dramatization on location, puppetry, and animation. Afterwards the series host guides children in the studio in a creative writing "encounter session." Together they explore ways in which they might express their experiences in writing. Winner of Gold Medal, Virgin Islands International Film Festival, 1975.

Lee Bennett Hopkins, teacher for the series, is a former curriculum and editorial specialist for *Scholastic Magazine*. He is the author of children's books, professional texts, and curriculum materials for elementary education.

LESSONS

1. **Words, Words, Words**—Introduces writing as a building process; investigates words as tools for individual expression. (19:30)
2. **Myths and Fables**—Considers the role of culture and imagination in the evolution of myths and fables. (19:30)
3. **Poetry I**—Presents poetry as a pleasurable way to express feelings and describe experiences. (19:28)
4. **Poetry II**—Familiarizes children with figurative language; introduces the haiku form of poetry. (19:30)
5. **Humor I**—Explores three types of written humor—take-off, surprise, and character; encourages children to draw humor from personal experience. (19:47)
6. **Humor II**—Shows children creating a humor magazine; considers the humorous qualities of jokes, cartoons, comics, riddles, puns, and a tall tale. (19:30)
7. **Short Story I**—Discusses the characters, setting, and plot of a short story; invites viewers to write an ending. (19:31)
8. **Short Story II**—Introduces several mystery writing components—alliteration, mood, and setting; challenges students to write an original mystery story. (19:10)
9. **The Writer's Tools**—Illustrates the steps in writing a report or article; emphasizes the importance of research and creative organization and presentation of non-fiction material. (19:02)
10. **Persuasive Writing**—Considers persuasion and defines propaganda; analyzes letters to the editor, public service announcements, and political persuasive writing. (19:32)
11. **Advertising**—Explores, by means of television commercials, the types and techniques of advertising, pointing out the difference between legitimate information and the huckster's pitch. (19:48)
12. **Newspaper Writing**—Illustrates various forms of newspaper writing; stresses the skills a newswriter must use to deal accurately with facts. (19:30)
13. **Plays**—Presents the elements of playwriting; shows children critiquing three original plays. (19:51)
14. **Scriptwriting**—Provides an introduction to a study unit on filming and videotaping; explains and illustrates camera movements, sound and picture alignment, and the addition of music and sound effects. (19:40)
15. **Journal**—Describes the journal as a sourcebook of ideas that later may take a variety of forms; shows that revision is a necessary process. (19:37)

THE JAPAN PRIZE Circulating Library

The Japan Prize has been awarded since 1965 by NHK, the Japanese national broadcasting service, to radio and television programs of singular excellence. The international competition has helped to stimulate interest in the field and has served to foster understanding and cooperation among broadcasters and educators of the participating nations.

Made up of prizewinners in both radio and television, the Japan Prize Circulating Library has been assembled for the purpose of making the best use of the educational materials entered in the contest. The materials are especially useful for demonstrating the state of the art in educational broadcasting in seminars, symposia, conferences, and classrooms.

The Agency for Instructional Television is one of ten repositories around the world for the circulating library. A second repository in the continental United States is the Communication Center of the University of Texas in Austin.

- Programs are available for non-broadcast use only on 16mm film and audio tapes. Service charges are $15 for each television program and $5 for each radio program. Programs may be kept one week.
- Printed materials, including scripts in English, instructional objectives, and comments on production and utilization, accompany most programs.

PROGRAMS*

1972 Television

Twenty-One Days in the Life of an Egg
Science (Secondary Education)
Produced by NHK, Japan (20:00)

Tick Tock Goes the Clock
Education for the Mentally Retarded (Primary Education)
Produced by NHK, Japan (20:00)

Notions on Sets
Mathematics (Adult Education)
Produced by RTB, Belgium (30:00)

Things Around Us
Technical Guidance (Primary Education)
Produced by Czechoslovakian Television (28:50)

Bill Before The House
Civics (Secondary Education)
Produced by Alberta School Television, Canada (28:50)

1972 Radio

The Wonderful Journey of Toldori
Science (Primary Education)
Produced by KBS, Korea (18:00)

What Do You Know?
Science (Secondary Education)
Produced by SABC, South Africa (14:11)

Give Your Child a Chance
Technical Guidance (Adult Education)
Produced by RTE, Ireland (20:00)

One, Two, Three, and What Then?
Mathematics (Primary Education)
Produced by Polish Radio and Television (19:20)

The Machine Takes Over?
Social Science (Secondary Education)
Produced by BBC, United Kingdom (18:36)

1973 Television

Praxis-Emergency Test
Health (Adult Education)
Produced by ZDF, Federal Republic of Germany (57:44)

The Electric Company, Show 136
Fight Against Illiteracy (Primary Education)
Produced by Children's Television Workshop, U.S.A. (28:38)

Aska and the Wolf
Literature (Primary Education)
Produced by Radio-Television, Zagreb, Yugoslavia (24:08)

Coordinates
Mathematics (Secondary Education)
Produced by RTM, Malaysia (16:21)

How Was the Opera? Grand, Just Grand!
Music (Secondary Education)
Produced by Department of Education, Hawaii, U.S.A. (27:12)

*No Japan Prize contests were held in 1970, 1974, and 1976.

1973 Radio

English Consort Music
Music (Adult Education)
Produced by the Open University, United Kingdom (17:30)

Ka Ki Ku Ke Ko, Ka Ki Ku Ke Ko
Language (National) (Primary Education)
Produced by NHK, Japan (15:00)

The Known and Unknown Functions of the Brain
Science (Secondary Education)
Produced by Romanian Radiotelevision, Romania (22:35)

Everything New
Literature, Social Studies (Primary Education)
Produced by BBC, United Kingdom (18:30)

1975 Television

Hail Caesar
Literature (Secondary Education)
Produced by BBC, United Kingdom (28:51)

Tawny Owls
Science (Adult Education)
Produced by The Open University, United Kingdom (24:26)

A Return Ticket to the Moon
Civics (Secondary Education)
Produced by Bayerischer Rundfunk, Germany (24:33)

The Barking Plate
Science (Primary Education)
Produced by Polish Radio and Television, Poland (9:30)

The Africa File: From Scheherazade to Selma
Social Studies (Secondary Education)
Produced by OECA, Canada (28:50)

1975 Radio

Delightful Rhythm
Music (Primary Education)
Produced by NHK, Japan (14:40)

Jumping and Winding
Music (Primary Education)
Produced by Magyar Radio, Hungary (19:20)

The Peak That Was Won Over (Part I and II)
Social Studies (Primary Education)
Produced by All India Radio, India (37:30)

English By Radio–Nouns
Language (Foreign) (Secondary Education)
Produced by PBC, Pakistan (29:05)

Hullo Pals, No. 7
Language (Foreign) (Secondary Education)
Produced by A3C, Australia (19:24)

The AIT repository also includes 16mm film anthologies that contain excerpts from outstanding programs in earlier competitions. Anthologies for the following contests are available: 1966, 1967, 1968, 1969, 1971. These can be rented for $10 each.

Rental Policies, Procedures, Prices

AIT television courses are available on a rental basis to educational institutions for instructional use over open-circuit broadcast stations, 2500 MHz (ITFS) systems, closed-circuit (CCTV) systems, and community antenna (CATV) systems.

Previewing

Pre-selected lessons are available for preview without charge except for return postage. Lessons other than those pre-selected are available for previewing at a charge to cover special preparation and handling. The charge varies depending on the preparation required.

- Preview materials can be provided in various formats.
- Preview materials should be requested *at least three weeks* in advance of use date; at least one alternate use date should be specified.
- Preview materials are *for one week's use*. If necessary, arrangements can be made for longer preview periods; this must be done when the order is placed.
- Confirmation of preview date is sent by mail and includes shipping instructions.
- Preview materials may be broadcast if permission is obtained in advance.

Telecourse Use

The rental fee authorizes one "use" over any type of electronic system when lessons are provided on AIT tapes (A "use" is defined as unlimited transmission of each lesson during a school week.); the rental fee authorizes an unlimited number of "uses" for a period of one school year when lessons are recorded on the user's tape stock.

School rerecording of public and instructional television programs

With the increased capability for off-air rerecording of educationally useful television programs for replay at times convenient to classroom scheduling, it is important to school systems that public and instructional programs be available for classroom playback, closed-circuit display and other school exhibition modes contemporaneously with local station broadcast. Content copyright and other legal limitations, however, often demand that the use of such program rerecordings be controlled in a manner consistent with original television broadcast authorization.

Accordingly, the Agency for Instructional Television, the Great Plains National Instructional Television Library, the Public Broadcasting Service, and the Public Television Library have jointly agreed on the general policy of authorizing supplemental school rerecordings of public and instructional television programs distributed by them for local ETV and other educational broadcast, solely on condition that:

1. School rerecordings may be made only by students, teachers, and faculty or staff members in an accredited nonprofit educational institution;
2. School rerecordings will be used solely for classroom, auditorium or laboratory exhibition in the course of classroom instruction or related educational activities;
3. School rerecordings will be used only in the educational institution for which made, and will not be given away, loaned or otherwise made available outside that educational institution;
4. School rerecordings will be used only during the seven-day period of local ETV and other educational broadcast licensed by the distribution agency, and will be erased or destroyed immediately at the end of that seven-day period except to the extent specifically authorized in writing in advance by the distribution agency.

This supplemental school rerecording authorization is applicable to all public and instructional programs distributed by these agencies, **excluding only those prohibited by reason of production or distribution rights restrictions.**

THE FOLLOWING TELECOURSES ARE NOT AUTHORIZED FOR RERECORDING UNDER EITHER THE SEVEN-DAY SCHOOL RERECORDING POLICY OR THE EXTENDED INSTRUCTIONAL USE EXPERIMENT

BOOK, LOOK AND LISTEN
ONCE UPON A TOWN
READERS CUBE
SPINNING STORIES

Extended instructional use of AIT telecourses

In response to numerous requests from school districts across the country, AIT has taken a further step toward making its telecourses even more accessible to schools. Agencies authorized to use AIT telecourses may, on an experimental basis, permit their participating school systems to retain rerecordings for repeated use as desired during the entire school year, September through June.

The aim of this experiment is to test the extent to which unrestricted broadcast rerecordings will be used in classrooms. A further objective is to determine if such an extended use will increase school support for instructional broadcast services. Finally, it is hoped the experiment will provide insight into the effect of advances in recording and playback technology upon instructional broadcasting.

The AIT experiment is for a three-year period (September, 1976, through June, 1979). It is confined to telecourses for which AIT controls distribution rights in all formats (i.e., film, videotape, reel-to-reel, videocassette, videodisc, etc.) and for all exhibition methods (i.e., television transmission, classroom playback, film projector, closed-circuit systems, etc.). The experiment also is limited to school systems specifically identified as participants in the instructional television services of agencies authorized to use AIT telecourses. Non-participating school systems are still not authorized to exceed the seven-day recording retention limit of the Joint Policy on "School Rerecording of Public and Instructional Television Programs."

Rental Fees

Rental fees are based on the premise that there should be a relationship between the amount paid and the number of students who can be served by the television system. The amount of the telecourse rental fee is determined by the size of school enrollments, the length of the lessons, the number of lessons in a course, and whether the lessons are provided on AIT tapes or are recorded on the user's tape stock.

Users are encouraged to record lessons on their own tape stock because this procedure offers economies for the user, provides for greater flexibility in scheduling, eliminates many shipping and handling problems, and makes possible unlimited repetitions during a school year. To assure technical quality and for reasons of logistics, it is recommended that the user buy the tape to be dubbed through AIT. Should the user supply tape from his own inventory, it must be new, unrecorded stock ready for dubbing (3M-400 or equivalent).

Computing costs—single licensee operating one or more stations: (base rate + school enrollment cost) x (number of lessons in a series) = total rental fee.

Base Rates

1. 10-min. lesson—$28.50
   15-min. lesson— 34.50
   20-min. lesson— 40.50
   30-min. lesson— 52.50
2. Base rates are reduced when lessons on user's tape stock are used in second and successive years. The reduced base rate is:
   10-min. lesson—$23.50
   15-min. lesson— 24.50
   20-min. lesson— 25.50
   30-min. lesson— 32.50

School Enrollment Cost

$1.50 per 10,000 students up to 250,000 + $.50 for each additional 10,000 students

(Student figures are based on K through 12 enrollment.)

TO FIND THE TOTAL FEE FOR A COURSE—AN EXAMPLE:

ITV Director Jones wants to order ALL ABOUT YOU for television broadcast to his school system. Since his K-12 enrollment is 167,320 he computes his rental fee to be $60.00 per program (base rate of $34.50 for a 15-minute lesson, plus $1.50 for each increment of 10,000 students). Since there are 30 lessons in the series, Jones' total rental fee for the use of ALL ABOUT YOU is $1,800.00.

(base rate + school enrollment cost) x (no. of lessons) = rental cost

($34.50 + $25.50) x (30) = $1,800.00

Prices effective for courses scheduled for starting dates in September or October, 1977.

Computing costs—multiple licensees operating tape or interconnected regional or area networks:

The multiple license fee provides for one set of AIT tapes to be transmitted or circulated among network participants. A network may retain an AIT tape *for three weeks*. Additional AIT tape copies are available, if required, at a cost of $2.00 per minute:

2-3 participants:
each pays 90% of single license fee

4-6 participants:
each pays 85% of single license fee

7-9 participants:
each pays 80% of single license fee

10-15 participants:
each pays 75% of single license fee

16 or more participants:
each pays 70% of single license fee

- Late-coming agencies to network contracts will be served at the network discount rate already established, whether or not the total number of participants goes up to the next level when they join.

Fees for the following telecourses are not based on the standard rental fee structure. (Consult individual course descriptions for specific costs.)

ABOUT SAFETY
ABOUT SCIENCE
ART FOR THE DAY
BREAD & BUTTERFLIES
THE HEART OF TEACHING
MEASUREMETRIC
SELF INCORPORATED
WHAT'S MY THING?

When user purchases tape stock from AIT:

AIT's standard tape format is quadruplex 15 ips. However, most helical formats are available by special arrangement and possibly at additional charge.

Prices for quadruplex tape stock are indicated below. All tape is packaged in plastic impact cases. (Prices for tape used with helical and videocassette machines are available on request.)

Quad tape	15 ips
15-min.	$ 46.50
20-min.	64.50
30-min.	86.00
60-min.	174.00

(10-min. lessons require 15 min. tape stock)

NO IMMEDIATE PRICE INCREASES ARE ANTICIPATED, BUT BECAUSE THE COSTS OF TAPE STOCK AND DUBBING ARE BEYOND AIT'S CONTROL, THESE PRICES ARE SUBJECT TO CHANGE.

When user supplies tape stock:

- All user tape stock must be new, unrecorded stock ready for dubbing (3M-400 or equivalent).
- All user tape must be shipped in plastic impact cases.
- A separate tape must be supplied for each lesson.
- Minimum tape lengths for quadruplex recordings:

	15 ips
15-min.	1240'
20-min.	1615'
30-min.	2410'

(10-minute lessons require 15-min. tape stock)

- Tape stock should be shipped to:
  AIT
  1111 West 17th Street
  Bloomington, Indiana 47401
- All tape should be identified. (A great deal of tape is received from many sources; inadequate identification creates obvious problems.)

Dubbing Charge:

A charge is made to partially cover the cost of having lessons dubbed on user tapes. The charge is assessed whether tapes have been purchased from AIT or are sent to AIT from the user's own stock:

	All tape formats
10-min.	$13.50
15-min.	15.00
20-min.	18.00
30-min.	25.00

Replacement Costs:

Lesson tapes that have been worn, damaged, or lost can be replaced by AIT. The cost includes tape stock, dubbing, shipping and handling:

	Quad tape
10-min.	$ 85.00
15-min.	95.00
20-min.	130.00
30-min.	170.00

TAPES TO BE DUBBED WITH COURSES SCHEDULED FOR STARTING DATES IN SEPTEMBER OR OCTOBER 1977 MUST REACH AIT BY JULY 5, 1977.

Scheduling

Most AIT courses are designed to be used at the rate of one lesson per week, in sequence, during consecutive school weeks. Variations in this use pattern are possible only when arrangements are made to record lessons on the user's tape stock.

Some AIT courses in which the lessons are not sequential are distributed in modules of from two to eleven lessons. The order in which the modules are scheduled may vary, but the program sequence within the modules does not.

NOTE: When placing an order, users must include a proposed transmission schedule. This schedule will be confirmed by AIT. Because of possible unavoidable changes, users are advised to publish broadcast schedules after receiving confirmation from AIT. The shipping schedule attached to the Telecourse Authorization constitutes the confirmed broadcast transmission schedule.

Ordering

All orders with September or October 1977 starting dates must reach AIT no later than July 5, 1977. To be sure that desired telecourses are available, users are urged to place orders early. Orders are processed on a first-come, first-served basis.

NOTE: It may be impossible for AIT to honor orders or schedule changes received after July 5, 1977 except at additional cost to the user.

The following must be supplied with an order:

- Proposed transmission schedule, including lesson titles, lesson numbers, and transmission dates.
- Purchase order number, name of the person to receive bill, and special billing instructions (payment is due upon receipt of invoice).
- Desired tape format.
- Complete shipping address for film and tape. (P.O. box number is not sufficient.)
- Name and telephone number of person who is to receive shipping information and instructions.
- Mailing address for general correspondence.
- Identification of transmission facilities (call letters, CCTV, ITFS, CATV).

Shipping

AIT's shipping procedure is designed to facilitate the movement of tapes to serve a number of users. Please follow it carefully.

1. The user is authorized to use lessons for *one week*, Monday through Friday, unless lessons are recorded on user's tape stock.
2. Tapes must be forwarded immediately following use—*no later than Friday of the week in which they are used.*
3. Shipping instructions are sent by mail from AIT and include the appropriate shipping labels. Shipping instructions include the transmission schedule of the next user if the lessons are to be bicycled.
4. Rental fees include outgoing surface shipping charges, but not return shipping charges. (If shipments are sent by air or otherwise expedited, extra charges may be necessary.)
5. Shipments made outside of the continental United States are subject to additional charges. Costs are available on request.

Confirmation:

A signed AIT Telecourse Authorization is confirmation of your order.

WHAT TO DO IF

Tape does not arrive on schedule (three working days before use date)

1. Check shipping instructions to determine origin of shipment.
2. Call shipper.
3. Call AIT Distribution if tape is lost (812) 339-2203.

Tape is unusable

1. Call AIT Distribution at least three working days before use date (812) 339-2203.
2. Complete and return (by separate mail) service card that accompanies tape.

Related Materials

Teacher's Guides

Teacher's Guides include overviews of the series indicating objectives and the classroom techniques that will help achieve them, descriptions of the content of each lesson, and suggestions for pre-lesson and post-lesson activities. Many of the guides contain bibliographies for teachers and students.

Student workbooks, discussion leader's guides, separate bibliographies, and activity cards for learners also are available for some courses.

Price List of Teacher's Guides

Course Title	Copies 1-9	10-499	500 & over
About Safety*	——	$ .10	$ .10
About Science	$1.00	.80	.72
All About You	1.50	1.00	.90
Animals & Such	1.00	.60	.54
Art for the Day*	——	.10	.10
Book, Look and Listen	†	†	†
bread & butterflies	2.50	1.70	1.50
Breakthru	1.00	.50	.45
Children of the World	1.00	.50	.45
Code/English	1.50	1.00	.90
Common Cents	†	†	†
Community of Living Things	1.50	1.00	.90
Contemporary Poetry	1.00	.55	.50
Contract!	†	†	†
Creative Dramatics	†	†	†
Discussing Controversial Issues	set 5.50	5.50	4.95
Coordinator Handbook	1.50	1.50	1.35
Student Handbook	1.25	1.25	1.12
Teacher Handbook	4.00	4.00	3.60
The Draw Man		.10	.10
Drugs: The Children Are Choosing	1.00	.70	.63
En Français	‡	‡	‡
Explorers Unlimited	1.00	.70	.63
First Films on Science	1.00	.50	.45
Getting the Word	5.00	3.50	3.15
Hands On I	1.00	.70	.63
Hands On II	1.00	.55	.50
Hands On III	1.00	.80	.72
Hands On IV	1.00	.80	.72
Hands On V	†	†	†
The Heart of Teaching			
Viewer's Guide	†	†	†
Discussion Leader's Guide	1.50	†	†
How Can I Tell You?	1.50	1.00	.90
If You Live in a City, Where Do You Live	2.00	1.60	1.44
Images & Things			
Teacher's Guide	2.00	1.50	1.35
Learning Resources Guide	1.00	.80	.72
Imagine That . . .	1.00	.60	.54
Inside/Out	2.00	1.40	1.25
Integration of Children with Special Needs in a Regular Classroom (Lexington Teacher Training Project)	set 10.00	6.00	5.40
	individual 1.00	.65	.59
It's All Up To You	†	†	†
Let's Draw	1.75	1.20	1.08
Let's See America	1.00	.40	.36
Life World 2000	2.00	1.55	1.40
Magic Pages	1.50	1.00	.90
Math Matters	1.00	.65	.59
Matter & Motion	1.00	.60	.54
A Matter of Fact	1.50	1.00	.90
A Matter of Fiction Teacher—Student Guide	1.00	.45	.40
MeasureMetric	†	†	†
Meet the Arts	1.00	.70	.63
The MeTooShow*	——	.10	.10
Metrify or Petrify	1.50	1.10	.99
Natural Science Specials*	——	.10	.10
Once Upon a Town	†	†	†
Other Families, Other Friends	1.50	1.00	.90
Picture Book Park	1.00	.55	.50
Pilgrims to the West*	——	.10	.10
Primary Art	2.00	1.15	1.03
Project: History	1.00	.50	.45
Puppets and the Poet*	——	.15	.15
Readers' Cube	†	†	†
Ready? Set . . . Go! Level I	3.50	2.40	2.15
Ready? Set . . . Go! Level II	3.50	2.30	2.07
Rights and Responsibilities	1.00	.50	.45
Ripples			
Teacher's Guide	1.00	.70	.63
Discussion Leader's Guide	.50	.25	.25
The Science Shed	3.50	2.00	1.80
Search for Life	†	†	†
Secondary Developmental Reading			
Teacher's Manual and Reading List	1.00	.70	.63
Reading List	1.00	.30	.27
Self Incorporated	1.00	.70	.63
Spinning Stories	†	†	†
Stepping into Melody	1.50	1.00	.90
Stepping into Rhythm	1.00	.80	.72
Stories of America	1.00	.70	.63
TV Today	†	†	†
Tell Me a Story	1.00	.60	.54
A Time of Your Life			
Teacher's Manual	1.50	1.00	.90
Administrator's Handbook	1.00	.50	.45
The Tune-Up Shop	1.75	1.20	1.08
Two Cents' Worth	1.50	.90	.81
Universe and I	†	†	†
What's My Thing?	1.00	.35	.31
Why?	1.50	.90	.81
Word Workers, Inc.	1.50	1.00	.90
Words Are for Reading	1.00	.65	.59
Wordsmith	1.00	.55	.50
Zebra Wings	1.00	.80	.72

†Price available on request.
*Combination guide and fact sheet, available in quantities at the prices listed.
‡Order form available from AIT.

Related Materials for Consortia-Developed Series

BREAD & BUTTERFLIES

- *My* BREAD & BUTTERFLIES *Career Book* that supplements the television series is published and sold by Houghton Mifflin Company, Educational Division, One Beacon Street, Boston, Massachusetts 02107. Using the principle of active student involvement, the workbook provides opportunities for application of self and career awareness skills in exploring new ideas. The price is $1.95.
- A parent-teacher guide with recommendations for using the workbook in classrooms and in home settings is also available from Houghton Mifflin Company. The price is $1.50
- A self-contained *Workshop Training Package* includes materials to help educators become familiar with the concepts and goals of the series. It suggests ideas for related classroom activities. The price is $65.

THE HEART OF TEACHING

- An *Applications Handbook* includes detailed suggestions and resource materials for conducting an intensive 20- to 40-hour human relations skill development workshop (or college course) for pre- or in-service teachers and counselors. The price is $45.
- A special program, *Demonstrations Enhancing Human Relations Skills*, illustrates through role-playing preferred ways of handling issues posed in the series programs. It is intended for use in human relations training courses or workshops. The price is $91 for videocassette, and $167 for quad tape.

IMAGES & THINGS

- A *Learning Resources Kit* is designed to stimulate visual and aesthetic experiences. It can be used independently by individual students or by groups, with or without the programs. The kit contains 180 color slides of art images appearing in the series, 10 slide viewers, and a guide. The price of the complete kit is $130.

INSIDE/OUT

- *Stories from INSIDE/OUT* is a paperback book of stories for young children adapted from the television series. The book is available from Bantam Books, Inc., School and College Division, 666 5th Avenue, New York, New York 10017. The price is $1.25.
- A free discussion guide for parents and teachers, also available from Bantam Books, helps adults share the experiences of *Stories from INSIDE/OUT* with children.
- A self-contained *Workshop Training Package* includes materials to help educators become familiar with the concepts and goals of the series, and suggests ideas for related classroom activities. Available from AIT, the price is $65.

SELF INCORPORATED

The following materials are all available from AIT:

- A *Packet of Background Readings* that consists of articles for AIT that deal with the physical, psychological, and social issues of early adolescence and the ways in which the emotional health of adolescents can be fostered inside and outside the classroom. The price for 10 sets is $15.
- A *Family Discussion Booklet* for adults and teenagers to use in discussions of SELF INCORPORATED programs and related issues. The price is $.50 per single copy.
- A *School/Community Awareness Kit* that includes a complete community preview format, reading lists, posters, and an article by Dr. Maria Piers, Dean of the Erikson Institute of Early Education, on the parent-child relationship. The kit is designed to help schools inform parents and the community about SELF INCORPORATED and to provide suggestions for involving parents and other adults in the use of the series. Single copies are free.
- A self-contained *Workshop Training Package* includes materials to help educators become familiar with the concepts and goals of the series, and suggests ideas for related classroom activities. The price is $14.50.

Films and videocassettes

A complete catalog describing audiovisual policies, individual programs, and resource packages will be sent on request.

Series available on film and videocassette

BREAD & BUTTERFLIES
Fifteen 15-min. color lessons:
16mm film—$180 per program
videocassette—$110 per program
One 20-min. teacher program:
16mm film—$100
videocassette—$115
One 15-min. informational program:
16mm film—$90
videocassette—$80

DISCUSSING CONTROVERSIAL ISSUES
Four 20-min. color lessons:
16mm film—$650 for all four programs
videocassette—$450 for all four programs

THE HEART OF TEACHING
Five 15-min. color programs:
16mm film—$250 per program
videocassette—$175 per program
"Teachers' Meeting" 30-min. color program:
16mm film—$400
videocassette—$290

IMAGES & THINGS
Thirty 20-min. color lessons:
16mm film—$230 per program
videocassette—$130 per program
Three 30-min. teacher programs:
16mm film—$150 per program
videocassette—$130 per program

INSIDE/OUT
Thirty 15-min. color lessons:
16mm film—$180 per program
videocassette—$110 per program
One 30-min. teacher program:
16mm film—$150
videocassette—$130
One 15-min. informational program:
16mm film—$90
videocassette—$80

A MATTER OF FACT
Fifteen 20-min. color lessons:
16mm film—$230 per program
videocassette—$130 per program

MEASUREMETRIC
Twelve 15-min. color lessons:
16mm film—$180 per program
videocassette—$110 per program

RIPPLES
Thirty-six 15-min. color lessons:
16mm film—$180 per program
videocassette—$110 per program
Three 30-min. teacher programs:
16mm film—$150 per program
videocassette—$130 per program

SELF INCORPORATED
Fifteen 15-min. color lessons:
16mm film—$180 per program
videocassette—$110 per program

UNIVERSE AND I
Twenty 20-min. color lessons:
16mm film—$230 per program
videocassette—$135 per program

Series available on videocassette

ABOUT SAFETY
Forty-two 5-min. color lessons:
Three programs per videocassette
$110 per videocassette

ABOUT SCIENCE
Forty 5-8-min. color lessons:
Three to five programs per videocassette
$180 per videocassette

ART FOR THE DAY
Eighty 3-4-min. color lessons:
Eight programs per videocassette
$180 per videocassette

COMMON CENTS
Five 15-min. color lessons:
One program per videocassette
$110 per program

CREATIVE DRAMATICS
Nine 20-min. color lessons:
One program per videocassette
$135 per program
Nine 30-min. teacher programs:
One program per videocassette
$180 per program

INTEGRATION OF CHILDREN WITH SPECIAL NEEDS IN A REGULAR CLASSROOM
(Lexington Teacher Training Project)
Ten 20-30-min. color lessons:
One program per videocassette
$180 per program

LIFE WORLD 2000
Twelve 15-min. color lessons:
One program per videocassette
$110 per program

METRIFY OR PETRIFY
Eight 30-min. color lessons:
One program per videocassette
$180 per program

RIGHTS AND RESPONSIBILITIES
Ten 20-min. color lessons:
One program per videocassette
$135 per program

WHAT'S MY THING?
Six 6-8-min. B&W lessons:
All six programs on one videocassette. $250 per videocassette

NO IMMEDIATE PRICE INCREASES IN RELATED MATERIALS ARE ANTICIPATED BUT BECAUSE THE COSTS OF CERTAIN GOODS AND SERVICES ARE BEYOND AIT'S CONTROL, ALL PRICES ARE SUBJECT TO CHANGE

ORDERING

- Order all related materials or obtain reprint rights through your regional office.
- All orders should be in writing, and should be submitted either in the form of a purchase order or on the institution's letterhead. Orders totalling less than ten dollars must be accompanied by remittance or institutional purchase order.
- Allow four to six weeks for delivery. Normal surface shipments are prepaid. Special orders and expedited shipments are F.O.B. Bloomington, Indiana.
- AIT publications are not sold on consignment. All purchases are final. Reprint rights for most printed materials can be obtained for a modest fee.

The following should be supplied with an order:

1. Purchase order number, special billing instructions, and name of person to receive billing.
2. Complete shipping address. (P.O. box number is not sufficient.)
3. Name and telephone number of person to receive shipping information.

In recognition of their intellectual and financial participation in consortia that developed BREAD & BUTTERFLIES, THE HEART OF TEACHING, IMAGES AND THINGS, INSIDE/OUT, A MATTER OF FACT, MEASUREMETRIC, RIPPLES, and SELF INCORPORATED, agencies within consortium areas are given discounted prices for print materials, films and videocassettes. These rates are available on request.

Research Publications

These research reports, of particular significance in the field of instructional television, are from AIT and its predecessor organizations, NITL, NCSCT, and NITC. Most were widely distributed. However, some were written for internal documentation and are generally unavailable to a larger audience. Publications may be obtained from AIT and from the Educational Resources Information Center (ED numbers are included). Many out-of-print reports (marked with an asterisk) are available through the ERIC system.

The Evaluation of Instructional Television. NITL, December 1963.*

The Status of Instructional Television. NITL, March 1964*

An Assessment of Instructional Television: 1966-1968. $2.00 per set, .40 each (ED 083 800)
- Instructional Television in Art Education
- Instructional Television in Music Education
- Instructional Television in Foreign Language Education
- Television in Health and Physical Education
- Television in Language Arts Education
- Television in Mathematics Education
- Television in Social Studies Education

Television in Higher Education: Social Work Education. NCSCT, 1966. .50 (ED 083 801)

One Week of Educational Television, Number 4. Morse Communication Research Center, Brandeis University and National Center for School and College Television, NCSCT, 1966* (ED 082 520)

Guidelines for Art Instruction Through Television for the Elementary Schools. NCSCT, 1967. $2.00

Television Guidelines for early Childhood Education. NITC, 1969. $2.00 (ED 040 739)

One Week of Educational Television, Number 5. National Education Television and the National Instructional Television Center, NITC, 1969. $2.50 (ED 029 501)

Continuing Public Education Broadcasting. NITC, September 1969. $3.50 (ED 038 042)

"Ready? Set . . . Go!"–A Preliminary Evaluation. NITC, 1969.*

The Analysis of Attention to a "Ripples" Encounter. NITC, 1970.*

Report of "Ripples" Evaluation Activities to the Consortium Members. NITC, July 1970. No Charge.

One Week of Educational Televison, Number 6. National Instructional Television Center and the Corporation for Public Broadcasting, NITC, 1971. $2.50 (ED 050 572)

"Images & Things" Evaluation Report to Consortium Members. NITC, September 1971. No Charge.

Cause & Affect: Summary Report to the Contemporary II. NITC, March 1972.*

The "Inside/Out" Evaluation: The First Five Programs, Parts I and II. Bureau of Public Discussion, Indiana University, July 1972. $5.00 (ED 070 250 and ED 070 251)

"Ripples" Use: A Second-Year Survey. NITC, Fall 1972.*

"Images & Things" Content Analysis. North Texas State University, 1972.*

Research Report: "Inside/Out" Teacher's Guide Survey. NITC, May 1973*

Consortium Agency Utilization and Promotion Activities for "Inside/Out." NITC, Fall 1973.*

Decision-Oriented Research in School Television. AIT, September 1973.* (ED 082 536)

"Ripples": A Third-Year Survey. AIT, December 1973. No Charge.

Research Memo: The Use of the "Inside/Out" Soundsheet. AIT, January 1974.*

Research Memo: Teachers' Opinions of "A Matter of Fact" Program Posters. AIT, August 1974.*

Report on Evaluation Activities of the "Bread & Butterflies" Project. Educational Testing Service and AIT, October 1974. $3.00 (ED 097 921)

Research Memo: Television/Film Series on Essential Learning Skills. AIT, October 1974.*

Preliminary Formative Evaluation Report: "Pressure Makes Perfect." AIT, April 1975.*

Preliminary Formative Evaluation Report: "Trying Times." AIT, August 1975.*

Formative Evaluation of "Self Incorporated" Programs (Research Report Number 30). AIT, January 1976. $5.00 (ED 119 712) Summary. (ED 119 711)

"Inside/Out" Teacher's Guide Survey (Research Report Number 31). February 1976. No Charge.

"Bread & Butterflies" Teacher's Guide Survey (Research Report Number 32) in preparation.

Technical Report: AITGRAF: The AIT Classroom Interaction Analysis Graphing Program (Research Report Number 33.) October 1976. No Charge.

Teachers' Opinions about the Viewer's Guide for The Parent Crunch *from "The Heart of Teaching" Series* (Research Report Number 34). March 1976. No Charge.

Formative Evaluation of "MeasureMetric" Program on Length (Research Report Number 35). May 1976.*

Research on the Format and Style of "The Heart of Teaching" Viewer's Guide (Research Report Number 36). September 1976. No Charge.

"Stories From 'Inside/Out'," Its Availablity and Use (Research Report Number 37). June 1976. No Charge.

A Compilation of Instructional Television Series for Secondary School Use (Research Report Number 38). June 1976. No Charge.

Responses to the Essential Skills Television Project Orientation Program (Research Report Number 39). August 1976.*

An Evaluation of "The Heart of Teaching" Leadership Training Institute (Research Report Number 40). August 1976.*

Responses to the Questionnaire included in "The Essential Skills Television Project: A Working Document" (Research Report Number 41). September, 1976.*

Educational Resources Information Center (ERIC)

The Educational Resources Information Center (ERIC) is a nationwide information network for acquiring and disseminating research and other literature in American education. It consists of a coordinating staff in Washington, D.C., and sixteen clearinghouses located at universities or with professional organizations across the country. Each of these clearinghouses is responsible for a particular educational area. For more information and to order documents write to: Educational Document Reproduction Service, Box 190, Arlington, Virginia 22210. Include the ERIC ED number when ordering if available.

AIT Board of Directors

Cyril B. Busbee
Superintendent of Education
South Carolina State Department
of Education

Edwin G. Cohen
Executive Director
Agency for Instructional Television

Martin W. Essex
Superintendent of Public Instruction
Ohio State Department of Education

Earle K. Hawkesworth *(Vice Chairman)*
Deputy Minister
Alberta Department of Education

Glenn W. Hoffmann *(Treasurer)*
Superintendent of Schools
Santa Clara County, California

William M. Holm
Superintendent of Schools
Ector County, Texas

T. Ranald Ide
Chairman, The Ontario Educational
Communications Authority

Marshall L. Lind
Commissioner of Education
Alaska Department of Education

Frances R. Link
Senior Associate Curriculum Development
Associates, Inc.
Washington, D.C.

Sterling M. McMurrin
Dean, Graduate School
University of Utah

John A. Montgomery *(Secretary)*
Vice President
Public Broadcasting Service

O. Leonard Press
Executive Director
Kentucky Authority
for Educational Television

Ewald B. Nyquist
Commissioner of Education
New York State Education Department

Armand Saintonge
Deputy Minister of Education
New Brunswick Department of Education

Walter D. Talbot *(Chairman)*
Superintendent, Department of Public
Instruction
Utah State Board of Education

Barbara S. Thompson
Superintendent of Public Instruction
Wisconsin Department of Public
Instruction

CE 005 623

AIT Professional Staff

Edwin G. Cohen	Executive Director
Robert W. Fox	Associate Executive Director for Development
Donald L. Sandberg	Associate Executive Director for Operations
Larry Walcoff	Associate Executive Director for Projects
Louise Johnson	Administrative Assistant
Rose Ann Cramer	Administrative Assistant

Business Affairs

Rod Rhea	Director
Bill Polley	Business Manager

Communications

Sylvia A. Straub	Communications Associate

Distribution

Wayne K. Thoren	Director
Jean Baker	Assistant to the Director
Robert Mobley	Materials Manager

Field Services

Bill Perrin	Director
Roy Morgan	Audiovisual Associate
Francis Thompson	Representative — East
Larry Laswell	Representative — South
Chet Tomczyk	Representative — Midwest
Gordon Hughan	Representative — West
Anne Ritchey	Audiovisual Representative — West
Michael Boggs	Audiovisual Representative — East

Programming

Raymond R. McKelvey	Director

Projects

Jerry L. Brown	Projects Associate
MaryAnn Blind	Instructional Designer — Essential Skills Project
Priscilla Denby	Curriculm Designer — Essential Skills Project

Publications and Information Services

Fritz Jauch	Director
Mardell Raney	Publications Associate
Dorothy Shawhan	Writer/Editor
Maureen Purcell	Writer

Research

Saul Rockman	Director
Monica Dignam	Research Assistant
Nancy Neubert	Research Assistant
Esther Newlin	Research Assistant

Cover: Mel Miller Printed by Cornelius Printing Co., Indianapolis

agency for instructional television

ACCESSION NUMBER: VT103459

PUBLICATION DATE: 15SEP75

TITLE: AUDIOVISUAL LIBRARY RESOURCE LIST. CAREER EDUCATION PROJECT.

DESCRIPTOR: *CAREER EDUCATION; *ELEMENTARY SECONDARY EDUCATION; *AUDIOVISUAL AIDS; *LIBRARY COLLECTIONS; *EDUCATIONAL RESOURCES; *CATALOGS; INSTRUCTIONAL MATERIALS

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 84P.; RELATED DOCUMENTS VT 103 551 AND VT 103 572 THROUGH VT 103 574 AND VT 103 460 THROUGH VT 103 466 AND VT 103 468 IN THIS ISSUE.

ABSTRACT: A LIBRARY OF AUDIOVISUAL INSTRUCTIONAL MATERIALS WAS ESTABLISHED AS PART OF A THREE-COUNTY AREA CAREER EDUCATION PROJECT HOUSED AT STATE FAIR COMMUNITY COLLEGE. THE COLLECTION CONSISTS OF KITS, CASSETTES, POSTERS, CHARTS, FILMSTRIPS, GAMES, PUZZLES, AND REAL OBJECTS. A COMPLETE LISTING OF THE CAREER EDUCATION AUDIOVISUAL LIBRARY HOLDINGS IS PRESENTED IN THIS DOCUMENT WITH SEPARATE COLOR-CODED SECTIONS FOR ELEMENTARY AND JUNIOR AND SENIOR HIGH MATERIALS. (NJ)

AVAILABILITY: CAREER EDUCATION PROJECT, STATE FAIR COMMUNITY COLLEGE, 1900 CLARENDON ROAD, SEDALIA, MISSOURI 65301 ($1.50 EA.)

INSTITUTION NAME: STATE FAIR COMMUNITY COLL., SEDALIA, MO.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 459

OCT 22 1976

BEST COPY AVAILABLE

RESOURCE LIST

AUDIOVISUAL LIBRARY
CAREER EDUCATION PROJECT

STATE FAIR COMMUNITY COLLEGE
SEDALIA, MO 65301

SEPTEMBER 15, 1975

VT 103 459

BEST COPY AVAILABLE

The establishment of audiovisual library is included as a part of the Career Education Project housed at State Fair Community College. It is to be developed throughout the three-year span of the project. After this time, it will continue to operate for school personnel in the community college district.

The library is housed in the Learning Resources Center at State Fair Community College. All school personnel in the Career Education Project and the community college district have lending privileges. A handbook containing complete check-out information along with necessary forms are available through each principal, counselor and librarian as well as from those teachers who were designated to work with the project during the 1975-76 school year.

The Career Education Resource Library has been reorganized to better meet your needs. It has been divided into the three following levels:

Elementary materials will be recognized by the use of a yellow dot over the catalog number. In addition ELEM will be included in the catalog number. Example: KT
ELEM
CE1

Junior High/Senior High materials will be recognized by the use of a green dot over the catalog number. In addition JRSR will be included in the catalog number. Example: KT
JRSR
CE2

Elementary-Junior High/Senior High will be recognized by the use of both a yellow and green dot. In addition both ELEM and JRSR will be included in the catalog number Example: KT
ELEM
JRSR
CE3

For your convenience we have color coded the sections included in this resource list. The color codes are as follows:

		PAGES
Elementary Materials	Yellow	5 - 32
Junior High/Senior High	Orange	33 - 73

Please refer to the approiate section for a list of materials that may be used in your area.

Recommendations and evaluations of materials in the Career Education Resource Library are available to anyone interested. The Assistant Librarian in the CERL and AV Specialist will always be available to assist all teachers with the use of the library.

If you visit the Career Education Audiovisual Library in the Learning Resources Center, you will be able to locate materials more quickly by noting the color-coded labels. All of the materials other than books and periodicals are color-coded. The color and code is as follows:

Item	Code	Color
Kit (a combination of two or more media designed to be used as a unit)	KT	Black
Cassettes	CT	Red
Posters, Charts	PA	Orange
Filmstips	FS	Green
Games, Puzzles	GA	Blue
Realia (actual objects or specimens)	RE	Brown

PROCEDURE FOR CHECKING OUT MATERIALS FROM CAREER ED. RESOURCE LIBRARY

To Reserve:

1. Reservation cards will be available in all school offices.
   A. Be sure to state desired material in order of preference.
   B. Be sure to send cards to Career Education, State Fair Community College, Sedalia, MO. 65301; or give cards to component specialists on their visits.
2. All reservations received will be posted up on a three month rotating calendar which will be placed in the Career Education Resource Library in SFCC.
3. Reservations made more than three months in advance will be filed with the Resource Library Assistant and will be transferred to the three month calendar at the appropriate time.
4. Reservations may also be called in to the SFCC Library, phone 826-7100, ext. 28. (Ask for Career Ed. Resource Library Ass't or Career Ed. AV Specialist)
5. Confirmation of dates will be sent to teachers immediately upon booking.

To Checkout

1. Use checkout form available
2. When materials are due, make arrangements to have this returned as close to due date as possible.
3. When the extension of any of the materials is desired, please call Resource Library Assistant or Career Ed. AV Specialist to check to see whether or not it has been previously reserved, or inquire at component specialists.

To Return

1. Return all materials to Career Ed. Resource Library by:
   A. Component specialist or any Career Ed. staff member
   B. Mail
   C. Bringing material to SFCC Career Ed. Resource Library
   D. Student enrolled in area Vo-Tech school program at SFCC.

To Evaluate

1. Evaluation forms are sent with the material requested. Please fill out and return with materials.
2. If Student Reaction Forms are sent, please have your students complete them and return them with materials.

Overdue Materials

Reminders will be sent to all teachers with overdue material.

ELEM BOOKS

Call No.	Book
LC 1043 .C37 ELEM JRSR	Career Education: What It Is and How To Do It, Olympus Publishing Co. Provides answers to some often-asked questions about career education. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LB 1027.5 .C37 1973 ELEM	Career Education and the Elementary School Teacher, Olympus Publishing Co. A "how to do it" book aimed at the elementary level. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LC 1044 .A35 ELEM JRSR	Career Education: A Curriculum Design and Instructional Objectives Catalog, American Institutes for Research. Includes an introduction plus many examples of instructional objectives in various areas. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LC 1044 .K46 ELEM JRSR	Planning and Organizing Career Curricula: Articulated Education, Howard W. Sams and Co., Inc. Includes sections on Transition to Articulated Programs, Structuring Experiences, Developing Learning Experiences, and Assessing, Staffing, and Managing Career Programs. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
HF 5382.5 .G24 ELEM	Alike and Different, Benefic Press. First in series entitled "Careers for All." Circulation period 4 weeks, suggested for grade 4.
HF 5381 .C2657 ELEM JRSR	Career Guidance: A Handbook of Methods, Charles E. Merrill Publishing Company. A professional reference book in career programs including a compendium of career guidance methods. Circulation period 3 weeks, suggested for counselors.
LB 1031 .D7 ELEM JRSR	Handbook of Curriculum Design for Individualized Instruction: A Systems Approach, Educational Technology Publications. Contains precise guidelines for designing and developing curriculum materials from rigorously defined behavioral objectives. Circulation period 3 weeks, suggested for teachers and administrators.
HF 5381 .D291 ELEM JRSR	Planning, Implementing, and Evaluating Career Preparation Programs, McKnight Publishing Co. A manual in loose-leaf form on strategies, identification, development, implementation and evaluation of programs: includes a "kit of tools" for activities, surveys, etc.

Call No.	Book
	Circulation period 4 weeks, suggested for teachers and administrators.
LB 1029 .N6 K36 ELEM JRSR	Preparing and Using Individualized Learning Packages for Ungraded, Continuous Progress Education, Educational Technology Publications. Textbook written in Individualized Learning Packages developing a means for creating such materials to be used within the present structure of our school systems. Circulation period 4 weeks, suggested for teachers and administrators.
LB 1065 .B656 ELEM JRSR	How To Write and Use Performance Objectives To Individualize Instruction, Educational Technology Publications. A four-volume series including: How To Analyze Performance Outcomes How To Write Performance Objectives How To Classify a Performance Objective How To Develop Performance Instructional Activities and Evaluations Circulation period 4 weeks, suggested for teachers and administrators.
LB 1570 .K28 ELEM JRSR	Behavioral Objectives in Curriculum Development, Educational Technology Publications. A book of selected readings and bibliography on behavioral objectives. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LB 1131 .P629 ELEM JRSR	Criterion - Referenced Measurement, Educational Technology Publications. A series of papers on criterion-referenced scores. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
HF 5381 .F884 ELEM JRSR	Manpower and Economic Education, Love Publishing Company. Includes units on the individual and the nature of work, the economic world, the manpower market, career opportunities in the American economy and technology, skills and investment in education.
HF 5381 .F884 ELEM JRSR	NVGA Bibliography of Current Career Information, 1973 Edition, National Vocational Guidance Association, Division of APGA. Contains a current career literature listing, career film reviews and a publisher's index. Circulation period 2 weeks, suggested for students, teachers, counselors and administrators.

Call No.	Book
HF 5381 .P43 ELEM JRSR	Perspectives on Vocational Development, American Personnel and Guidance Association. Contains five parts: introducing vocational development (2, 3, 4) discussing vocational development theory in the past, present and future also special applications. Circulation period 4 weeks, suggested for teachers, counselors and administrators.
HF 5382 .C869 ELEM JRSR	The Maturity of Vocational Attitudes in Adolescence, American Personnel and Guidance Association. The second volume of the APGA Inquiry Series includes findings and discussion of the Vocational Development Project. Circulation period 2 weeks, suggested for counselors, teachers and administrators.
LB 1541 .A3 ELEM	Creative Woodwork in the Kindergarten, T. S. Denison and Company, Inc. A booklet explaining why small children should be encouraged to use woodworking tools and how they can be taught to use them safely. Also included are instructions for projects they can make. Circulation period 4 weeks, suggested for primary teachers. (2 copies available)
T 65 .S39 ELEM JRSR	Teaching Children about Technology, McKnight Publishing Company. A three-part text to help teachers teach students about the complexitites of industry. Circulation period 2 weeks, suggested for use by teachers.
ELEM JRSR	Developing Student's Potentials, Education Resources Division, Capitol Publications, Inc. Provides the reader with information on three programs that have been conducted in a variety of settings with research and references: Achievement Motivation Training, Human Potential Group Training, Eliminating Self Defeating Behavior Training. Circulation period 2 weeks, suggested for counselors and teachers.
ELEM JRSR	The Parents' Role in Career Development, The National Vocational Guidance Association. To enable parents to help their children make their occupational choice. Circulation period 1 week, suggested for teachers, counselors and administrators.
HF 5381 .N353 ELEM JRSR	Guidelines for the Preparation and Evaluation of Career Information Media, National Vocational Guidance Association. A set of Guidelines for filmstrips, films and occupational literature. Circulation period 2 weeks, suggested for teachers and counselors.
TT 185 .L4 ELEM	Carpentry for Children, Sterling Publishing Company, Inc. A book with ideas of things for children to make out of wood. Has step-by-step directions , complete with pictures. Circulation period 4 weeks, suggested elementary level.

Call No.	Book
HN 57 .B9 ELEM	Protest I, by Lerner Publications Company. Discusses the origins and effects of such specific protest movements in the United States as the Boston Tea Party, abolition, women's rights, and the labor movement. Circulation period 2 wks, suggested for grades 3-6.
DS 557 .A68 B88 ELEM	Protest II, by Lerner Publications Company. Traces the main events in the civil rights and antiwar movements and briefly discusses new areas of protest such as school busing and prison reform. Circulation period 2 wks., suggested for grades 3-6.
HT 1321 .028 ELEM	People in bondage: African slavery in the modern era, by Lerner Publications Company. A history of the slave made from ancient and medieval. times to its abolition after the Civil War. Circulation period 2 wks., suggested for 4-6.
GN 197 .L47 ELEM	Color and People, by Lerner Publications Company. Discusses pigmentation in animals and man and the production of various colorings in hair, eyes, and skin. Circulation period 2 wks., suggested for grades 4-6.
N 8232 .C6 1970	The Black Man in Art, by Lerner Publications Company. Discusses black man's art throughout the world at various centuries. Circulation period 2 wks, suggested for 4-6.
E 185 .S6 1971 ELEM	The Negro in America, Lerner Publications in America. Traces American Negro history from 1619 to the 1960's and discusses the Negro's influence on America's history and culture. Circulation period 2 wks., suggested for 4-6.
ML 3930 .A2 S9 ELEM	Singers of the Blues, Lerner Publications Company. Brief biographies of seventeen singers and musicians who helped develop the blues style and became legendary performers in their lifetime. Circulation period 2 wks., suggested for 4-6.
ELEM	Children's Dictionary of Occupations, by Counselor Films, Inc. Defines over 300 jobs from accountant to zoologist. Each occupation is alphabetically listed, complete with illustration, definition, and a guide to pronunciation. Circulation period 2 wks., suggested for grades 3-6.

Call No.	Book
LC 215 .Y45 ELEM	Yellow Pages of Learning Resources, by Group for Environmental Education, Inc. Provides a selection of the typical learning resources that can be found in a city. The examples are intended to indicate the depth and breadth of available learning possibilities. Circulation period 2 wks., suggested for elementary level.

ELEM BOOK SERIES

Call Number	Name Publisher Description
PZ 9 .W63 Co ELEM	Come to Work With Us Series, Houghton Miffin. Books with glossaries, teacher's manual. Circulation period 4-6 weeks, suggested for primary level. (Note: Use the same call number for checking out entire series or any individual book.) Includes Come To Work With Us In:

a Newspaper	a Bank
House Construction	a Hotel
a Department Store	Aerospace
a Hospital	a Toy Factory
an Airport	a Dairy
a TV Station	a Telephone Company

"What Happens" Series, Reilly and Lee Books, Henry Regnery Company. Books that answer questions about what really happens in the systems and institutions that affect students' daily lives. Circulation period 4-6 weeks, suggested for grades 2-4. (Note: Omit call number when checking out entire series. Use call number given when checking out individual titles.) Includes What Happens:

TL 153 .S496 ELEM	At a Gas Station
PN 4734 S48 ELEM	At a Newspaper
HF 5472 .U7 I48 ELEM	At a State Fair
PZ 10 .S558 We ELEM	At a Television Station

Call No.	Book
QC 875 .U7 S5 ELEM	At a Weather Station
PZ 10 .S558 Wt ELEM	At a Zoo
SF 604.5 .S5 ELEM	At an Animal Hospital
GV 1801.5 .S52 ELEM	At the Circus
TL 147 .S45 ELEM	In a Car Factory
TH 1615 .S5 ELEM	In a Skyscraper
TH 4811 .S45 ELEM	When you Build a House
PZ 10 .S558 Wh ELEM	When You Go to the Hospital
HE 6078 .S46 ELEM	When You Mail a Letter
TK 6165 .S5 ELEM	When You Make a Telephone Call
HG 1576 .S5 ELEM	When You Put Money in a Bank

Call No.	Book
HB 171.7 .S48 ELEM	When You Spend Money
HE 9787 .S5 ELEM	When You Travel By Plane
TK 148 .S53 ELEM	When You Turn On the Light

Early Career Books, Lerner Publications Company. Book series with each book describing related occupations in the area indicated in the title. Includes a full-page color picture of each occupation. Suggested for third grade. (Note: Omit call number when checking out entire series. Use call number given when checking out individual titles.) Circulation period 1 wk.

HD 8039 .A4 D4 ELEM	Careers With an Airline
HG 1576 .D38 ELEM	Careers in a Bank
GV 867 .D38 ELEM	Careers in Baseball
QA 76.25 .R39 1973 ELEM	Careers in Computers
HF 5429 .D34 ELEM	Careers in a Department Store

Call No.	Book
TH 148 .M4 1975 ELEM	Careers With a Railroad
GV 1801.5 .K44 ELEM	Careers With the Circus
TH 9148 .P43 1975 ELEM	Careers With a Fire Department
HE 6499 .P48 1975 ELEM	Careers With the Postal Service
QL 50.5 .B46 1974 ELEM	Careers in Animal Care
JS 155 .B45 1974 ELEM	Careers With the City
LB 2832 .B46 ELEM	Careers in Education
PN 2074 .B3 ELEM	Careers in the Theater
S 944 .B46 1974 ELEM	Careers in Conservation
TH 159 .R35 1975 ELEM	Careers in Construction

Call No.	Book
GV 950.7 .R39 ELEM	Careers in Football
GV 847.25 .R39 ELEM	Careers in Hockey
R 690 .D38 ELEM	Careers in a Medical Center
HV 7922 .R39 ELEM	Careers With a Police Department
HD 8039 .T3 D37 ELEM	Careers With a Telephone Company
PN 1992.55 .R3 ELEM	Careers With a Television Station
Z 243 .A2 D33 ELEM	Careers in Printing
S 494.5 .A4 B45 1974 ELEM	Careers in Agriculture
HD 9710 .A2 B46 1974 ELEM	Careers in Auto Sales and Service

Call No.	Book
LB 2832 .B46 ELEM	Careers in Education
QL 50.5 .B46 1974 ELEM	Careers in Animal Care
JS 155 .B45 1974 ELEM	Careers With the City
S 944 .B46 1974 ELEM	Careers in Conservation

Community Helper Series, Albert Whitman and Company. Sample copies from a series dealing with community workers. Each has a picture dictionary, illustrations plus information. Circulation period 2 weeks, suggested for primary grades. Titles include:

TD 148 .C47 ELEM	Clean Streets, Clean Water, Clean Air
TH 4811 .N36 ELEM	New House, New Town

Call Number	Name Publisher Description
	Medical Books for Children Lerner Publications Company A book series written by authorities who have related their topics to children's present day living experiences. Many include an information section for parents and teachers as supplementary material. (Note: Entire series may be checked out or individual titles.) Circulation period 6 weeks.
	Titles Available:
QM 548 .K7 ELEM	Our Wonderful Hands - Suggested for 2-8
QM 549 .K73 ELEM	Our Remarkable Feet - Suggested for 2-8
QH 367.1 .L4 ELEM	Where Do You Come From?: The Story of Evolution Suggested for 4 up
QL 942 .L6 ELEM	Horns, Hoofs, Nails - Suggested for 2-8
CT 9983 .A1 G4 ELEM	They Wouldn't Quit: Stories of Handicapped People Suggested for 2-8
PZ 10 .L47 Re ELEM	Red Man, White Man, African Chief: The Story of Skin Color - Suggested for K-8
PZ 10 .F76 Ho ELEM	How We Hear: The Story of Hearing - Suggested for 2-8

Call Number	Name Publisher Description
PZ 10 .L47 Le ELEM	Lefty: The Story of Left-handedness - Suggested for K-8
PZ 10 .L47 Tw ELEM	Twins: The Story of Twins - Suggested for K-5
PZ 10 .L47 Do ELEM	Doctor's Tools - Suggested for 2-8
PZ 10 .L47 Pe ELEM	Peter Gets the Chickenpox - Suggested for K-5
PZ 10 .L214 De ELEM	Dentist's Tools - Suggested for 2-8
PZ 10 .S1933 Wh ELEM	Why Glasses?: The Story of Vision - Suggested for 4-8
PZ 10 .B295215 Ho ELEM	How We Talk: The Story of Speech - Suggested for 2-8
PZ 10 .L47 Mi ELEM	Michael Gets the Measles - Suggested for K-5

Call Number	Name Publisher Description
PZ 10 .G533 Kar ELEM	Karen Gets a Fever - Suggested for K-8
PZ 10. L47 Fu ELEM	Fur, Feathers, Hair - Suggested for 2-8
PZ 10 .E7 Pe ELEM	Penny, the Medicine Maker: The Story of Penicillin Suggested for K-5
PZ 10 .L47 De ELEM	Dear Little Mump Child - Suggested for K-5
	Basic Understanding Series, Benefic Press. Explanations of the student's world. (Note: May be checked out as a series or by individual titles.) Circulation period 4 weeks, suggested for grades 1-5
PE 1127 .C6 M3 ELEM	How We Get Our Mail
PE 1127 .F35 P7 ELEM	How Families Live Together
PE 1127 .M4 M4 ELEM	How Hospitals Help Us
PE 1119 .H215 ELEM	How Schools Help Us

Call Number	Name
PE 1127 .H85 B33 ELEM	How We Celebrate Spring Holidays
PE 1119 .M116 ELEM	How We Get Our Clothing
PE 1127 .F6 B33 ELEM	How We Get Our Dairy Foods
PE 1127 .A4 M3 ELEM	How Airplanes Help Us
PE 1127 .F6 B3 ELEM	How Foods are Preserved
PE 1127 .T7 P74 ELEM	How We Travel on Water
GA 130 .S8 ELEM	How We Use Maps and Globes
PZ 9 .S811 Ho ELEM	How Rules and Laws Help Us
PZ 10 M477 Ho ELEM	How Farms Help Us

Call Number	Name
JK 273 .S73 ELEM	How Our Government Helps Us
PE 1127 .C6 M25 ELEM	How Communication Helps Us
PE 1127 .P7 M3 ELEM	How Printing Helps Us
PE 1127 .T7 P7 ELEM	How We Travel on Land
PE 1127 .C55 M3 ELEM	How We Get Our Cloth
PE 1127 .D9 P7 ELEM	How We Get Our Shelter
PE 1119 .S687 ELEM	How People Live in the Big City
HG 221.5 .S7 ELEM	How People Earn and Use Money
HT 351 .S83 ELEM	How People Live in the Suburbs

Call No.	Book
	An Early Metric Book Series, Lerner Publications Company. This series is designed to introduce young readers to the basic principles and uses of the metric system. Circulation period 1 week, suggested for grades 7-9.
QC 92.5 .S476 1975 ELEM	The Meter
QC 92.5 .S46 1975 ELEM	The Gram
QC 271.4 .S48 1975 ELEM	The Celsius Thermometer
QC 92.5 .S48 1975 ELEM	The Metric System
QC 92.5 .S47 1975 ELEM	The Liter

Call No.	Book
AG 5 .C515 1974 ELEM	The How and Why Library, by Childcraft. A fifteen volume set which concentrates on broad areas of children's interests, and also to broad areas of the school curriculum. Titles include: Poems and Rhymes Stories and Fables Children Everywhere World and Space About Animals The Green Kingdom How Things Work How We Get Things Holidays and Customs Places to Know Make and Do Look and Learn Look Again Guide and Index

ELEM KITS

Call No.	Kit
KT ELEM CE1	DUSO (Developing Understanding of Self and Others) Kit I. American Guidance Service, Inc. Includes books, posters, cassettes, hand puppets, puppet props, activity cards, and supplementary activites. Circulation period 4-6 weeks, suggested for K-lower primary.
KT ELEM CE2	DUSO (Developing Understanding of Self and Others) Kit II, American Guidance Service, Inc. Includes posters, cassettes, hand puppets, activity cards, and supplementary activities. Circulation period 4-6 weeks suggested for upper primary-grade 4.
KT ELEM CE3	"I Want To Be" Tree, Children's Press. Tree with six book bags, four copies of a title to a bag plus teacher's guide and cassette. Circulation period 4 weeks, suggested for grade two reading level. The following books are included and may be checked out singly if the kit is not in use:

Call No.	Book
PZ 10 .B1472 Ib	I Want To Be a Forester
ML 3930 .A2 G74	I Want To Be a Musician
PZ 10 .B1472 Ib	I Want To Be a Beauty Operator
HF 5547 .B24	I Want To Be a Secretary
PZ 10 .B1472 Ig	I Want To Be an Architect
GV 847.25 .B34	I Want To Be a Hockey Player

Call No.	Kit
KT ELEM CE4	Careers Unit, Scholastic. A unit from the Dimension program containing a filmstrip and cassette plus teacher's guide and materials for classroom activities. Circulation period 4 weeks, suggested for grades 4-6.
KT ELEM CE5	How Do You Feel? Hats, Trend Enterprises. Six plastic hats portray sadness, happiness, fear, anger, surprise and puzzlement. Circulation period 3 weeks, suggested for primary students, can be used by teachers or counselors.
KT ELEM CE6	Experimental Development Program, Unit A: You and Your Family, Benefic Press. Program includes a teacher's book with study prints, child's activity books, and storage case. One copy of each of the following enrichments books is included: I am Here — My Friends and I My Family and I — I Can Do It Circulation period 4-6 weeks, suggested for K-1.
KT ELEM CE7	Experimental Development Program, Unit B: You and Your Friends, Benefic Press. Program includes a teacher's book with study prints, child's activity books, and storage case. One copy of each of the following enrichments books is included: Going To School — In Our Class About Our School — In Our School Circulation period 4-6 weeks, suggested for K-1.
KT ELEM CE8	Experimental Development Program, Unit C: You and Others, Benefic Press. Program includes a teacher's book with study prints, child's activity books, and storage case. One copy of each of the following enrichments books is included: I Live in the City — Animals We Know Going and Coming — Community Friends Circulation period 4-6 weeks, suggested for K-1.

Call No.	Kit
KT ELEM CE9	When I Grow Up, I Want To Be..., Instructo. Characters, clothing and accessories for over 36 occupations for use with flannel board, plus teaching guide. Circulation period 4 weeks, suggested for primary grades.
KT ELEM CE10	Most Important Person, Encyclopedia Britannica. Includes film kits on Attitudes, Feelings, Getting Along with Others, and Identity, featuring Hairy, Fumble, and Bird - three personalities in puppet form. Two puppet kits accompany each film kit along with activity cards, song card, record and teacher's guide.
	Films include:
KT ELEM CE11-A	Attitudes Oops, I Made a Mistake! I'm Lonely Why Not Try? We Can Do It! It's Not Much Fun Being Angry Nothing Ever Seems to Work Out for Me
KT ELEM CE11-B	Identity I'm the Only Me! Where Are You In Your Family? How Do We Look? What Do You Think You Want to Be? Every Family is Special The Most Important Person
KT ELEM CE11-C	Feelings Feeling Good, Feeling Happy! I Used to Be Afraid Different Kinds of Love
KT ELEM CE11-D	Getting Along With Others Growing Up Doing Something Nice Thinking of Others What is a Friend? What Do You Mean? Living Things Are All Around Us Share It with Someone
KT ELEM JRSR CE12	Educator's Kits, Let's Save the Children, Inc. Units based on experience of popular black personalities (Roberta Flack, Issac Hayes, The Jackson Five, Nikki Giovanni, Flip Wilson, The Staple Singers, Marvin Gaye, Rev. Jesse Jackson.) Includes books, teacher's guide, puzzles, and coloring books. Circulation period 4 weeks, suggested for K-8.

Call No.	Kit
KT ELEM JRSR CE13	Compulearn Career Education Program, Random House. A battery-operated console used with program cards. Helps students progress through series of questions on interests, career information, etc. Includes educator guides, student guides, bibliographies, career index, console and program cards. Circulation period 3 weeks, suggested for K-12.
	Off We Go to the...., by Guidance Associates. Provides a "field trip" to the designated places through filmstrips and cassettes, meanwhile it is unlocking the door of interest to the world of work. Circulation period 1 week, suggested for elementary level. Titles include:
KT ELEM CE14	Off We Go to the Auto Proving Ground.
KT ELEM CE15	Off We Go to the Bike Factory.
KT ELEM CE16	Off We Go to the Aquarium.
KT ELEM JRSR CE17	The Paycheck Puzzle, by Guidance Associates. A two part series with Part I explaining automatic and voluntary payroll deductions, and Part II examining types and variations of benefits young workers may encounter. Circulation period 1 week, suggested for K-12
KT ELEM JRSR CE18	Jobs and Gender, by Guidance Associates. Explores how sexual barriers and sterotypes have influenced men's and women's vocational choices; discusses changing concepts of "masculine" and "feminine" work roles through male teachers, a male nurse, etc. Circulation period 1 week, suggested for K-12.
KT ELEM CE19	Career Awareness Series, by Educational Activities, Inc. This series explores the world of work and introduces students to many careers. Titles include: School Workers Susan Goes to the Hospital Building a Building A Visit to the Airport Circulation period 4 weeks, suggested for elementary level.

Call No.	Kit
KT ELEM CE20	It's OK To Be Me. This is designed to help children become aware of themselves and realize they are each important. Circulation period 2 wks., suggested for Elementary.
	Shoebox Kits, by State Fair Community College. Hands on individualized instruction kits. Designed for children with interests in the tools of various career fields. Circulation period 2 wks., suggested for the elementary level, (teacher usage determines grade level.)
KT ELEM CE21	"Do I Want to Be an Electrician"
KT ELEM CE22	"Do I Want to Be an Architect"
KT ELEM CE23	"Do I Want to Be a Plumber"
KT ELEM CE24	"Do I Want to Be a Seamstress"
KT ELEM CE25	"Do I Want to Be a Nurse"
KT ELEM CE26	"Do I Want to Be an Interior Designer", Kit #1 and Kit #2.
KT ELEM CE27	Can You Follow Directions? Part I and Part II.
KT ELEM CE28	Jobs!
KT ELEM CE29	Setting the Table - Table Manners
KT ELEM CE30	"Do I Want to Be a Beauty Operator"

Call No.	Kit
KT ELEM CE31	Career Flashcards, by Counselor Films, Inc. Designed to integrate career awareness in the classroom. 8" x 10" cards can by used by teacher and the smaller 3" x 4" cards can be used individually by the students. Circulation period 2 wks., suggested for grades 3-6.
KT ELEM CE32	People at Work, by King Features. A library of six occupations which shows by a filmstrip, a cassette, and booklets what goes on in various occupations. Titles include the following: The Comic Book The Filmstrip The Newspaper The Bakery Toys and Dolls Bubble Gum Circulation period 2 wks., suggested for grades 3-6.

ELEM PERIODICALS

Volume and Number	Name Publisher
Specimen Set	"A Highway to Work and Play," McKnight Publishing Co. A specimen set containing a teacher's guide with content of all 16 issues plus two full size sample copies for each level, 1-6. Circulation period 3 weeks, suggested for teachers of grades 1-6.
P ELEM JRSR	CAREER EDUCATION DIGEST, Educational Properties, Inc. Monthly magazine of information and materials related to career education. Circulation period 2 weeks, suggested for teachers, counselors, and administrators.
May 73 June/July 73 Sept./Oct. 73 Nov. 73 Dec. 73 Jan./Feb. 74 Mar. 74 Apr./May 74	
	LET'S FIND OUT, Scholastic Magazines. Samples of two issues of student magazine with teaching aide and teacher's edition. Circulation period 4 weeks, suggested for K. Consists of:
VII-1 Oct. 72	The City Halloween Water Pipes
VIII-5 Feb. 74	About Houses (3 parts)

ELEM REALIA

Call No.	Realia
RE ELEM CE1	Coping Saws (12 Saws) with extra blades. Circulation period 4 weeks, suggested for students at all age levels.
RE ELEM CE2	Hats. Fireman's Helmet Fatigue Cap Flight Cap Two Officer's Flight Caps Circulation period 2 weeks (may be checked out individually), suggested for elementary students.
RE ELEM CE3	Tool Chest. Complete with many tools necessary for completing projects in the Carpentry for Children book, which is also available in the Career Education Resource Library. Circulation period 2 weeks, suggested for elementary level.
RE ELEM CE4	Footnotes to Community Helpers, by Wilson Corporation. Six records designed to provide the elementary school child with an awareness and an appreciation of the contributions made by "community helpers Circulation period 2 weeks, suggested for elementary level.

ELEM POSTERS

Call No.	Poster
PA ELEM JRSR CE1	Career Education Model K-Adult, Education Properties, Inc. In chart form. Lists of the elements and goals of career education, and the means of achieving these goals by grade level. Circulation period 2 weeks, suggested for teachers, counselors, and administrators.
PA ELEM CE2	Community Helpers Bulletin Board Cutouts, Trend Enterprises. Figures ranging up to 27" of seven community workers. Circulation period 4-6 weeks, suggested for primary level.
PA ELEM CE3	Transportation Posters, Trend Enterprises. Eight full-color, 21" X 29" glossy posters and detailed resource guide showing over 85 different vehicles incorporated into the following settings: a farm, harbor, airport, lake, a suburban and an urban neighborhood and industrial area. Circulation period 4-6 weeks, suggested for primary level.
PA ELEM CE4	Mothers Do Many Kinds of Work, Scott, Foresman and Company. Eight copies of poster showing mothers in various work situations. Circulation period 4 weeks, suggested for primary and intermediate levels.
PA ELEM CE5	When You Grow Up, Trend Enterprise. 15 individual posters, each representing one of the major career clusters. Circulation period 4 wks., suggested for the elementary level.

ELEM GAMES AND PUZZLES

Call No.	Games and Puzzles
GA ELEM CE1	Motor Expressive Cards I and II, Developmental Learning Materials. Each contains one instructional sheet and thirty cards to be used to stimulate development of motor and visual coordination and also to encourage verbalization of ideas. Example: picture of hammer associated with picture of nail. Circulation period 2 weeks, suggested for primary and lower intermediate levels.
GA ELEM CE2	Shopping Lists Game, Developmental Learning Materials. Contains shopping lists associated pictures, play money, instructional sheet and card holder; allows the student to learn word-picture association, utilize alphabetizing skills and develop his vocabulary. Circulation period 2 weeks, suggested for primary and intermediate levels.
GA ELEM CE3	Building Match-ups, Developmental Learning Materials. The match-up cards help to develop readiness skills such as discrimination, memory and language, also includes instructional sheet. Each card pictures a building housing a business while the small cards depict an associated object or person. Includes a drug store, grocery, music store, clothing store, hotel, medical building, factory and gas station. Circulation period 2 weeks, suggested for primary and intermediate levels.
GA ELEM CE4	Job Puzzles, Developmental Learning Materials. Eight puzzles to help a child develop body concept and visual attention to pictures. Includes a mailman, nurse, teacher, fireman, football player, farmer, policeman, painter.
GA ELEM CE5	Occupational Puzzles, Playskool. Durable puzzles showing the following occupations: waitress, fireman, milkman, doctor, nurse, patrolwoman, postman, grocer, baker, and farmer. Circulation period 2 weeks, suggested for primary level.

JRSR BOOKS

Call No.	Book
LC 1043 .C37 ELEM JRSR	Career Education: What It Is and How To Do It, Olympus Publishing Co. Provides answers to some often-asked questions about career education. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LC 1044 .E92 1973 JRSR	Career Education in the Middle/Junior High School, Olympus Publishing Co. Third in the series of "how to do it" books, aimed at the junior high level. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LB 1027.5 .B24 JRSR	Career Education: New Approaches to Human Development, McKnight Publishing Co. Includes sections on theory, research, evolution, and planning for career education. Circulation period 3 weeks suggested for teachers, counselors, and administrators.
LC 1044 .A35 ELEM JRSR	Career Education: A Curriculum Design and Instructional Objectives Catalog, American Institutes for Research. Includes an introduction plus many examples of instructional objectives in various areas. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LC 1044 .K46 ELEM JRSR	Planning and Organizing Career Curricula: Articulated Education, Howard W. Sams and Co., Inc. Includes sections on Transition to Articulated Programs, Structuring Experiences, Developing Learning Experiences, and Assessing, Staffing, and Managing Career Programs. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LB 1031 .D7 ELEM JRSR	Handbook of Curriculum Design for Individualized Instruction: A Systems Approach, Educational Technology Publications. Contains precise guidelines for designing and developing curriculum materials from rigorously defined behavioral objectives. Circulation period 3 weeks, suggested for teachers and administrators.
HF 5381 .D291 ELEM JRSR	Planning, Implementing, and Evaluating Career Preparation Programs, McKnight Publishing Co. A manual in looseleaf form on strategies, identification, development, implementation and

Call No.	Book
	evaluation of programs; includes a "kit of tools" for activities, surveys, etc. Circulation period 4 weeks, suggested for teachers and administrators.
LB 1029 .N6 K36 ELEM JRSR	Preparing and Using Individualized Learning Packages for Ungraded, Continuous Progress Education, Educational Technology Publications. Textbook written in Individualized Learning Packages developing a means for creating such materials to be used within the present structure of our school systems. Circulation period 4 weeks, suggested for teachers and administrators.
LB 1065 .B656 ELEM JRSR	How To Write and Use Performance Objectives To Individualize Instruction, Educational Technology Publications. A four-volume series including: How To Analyze Performance Outcomes How To Write Performance Objectives How To Develop a Performance Instructional Activities and Evaluations How to Classify a Performance Objectives Circulation period 4 weeks, suggested for teachers and administrators.
LB 1027.5 K391 JRSR	Career Development Activities, Howard W. Sams & Co., Inc. A manual of suggestions for activities to be used to integrate career development activities with traditional subject matter. Instructor's guide included. Circulation period 4 weeks, suggested for students 7-12, can be used by teachers or counselors.
HF 5382.5 .U5 F43 JRSR	Occupations and Careers, Webster Division, McGraw-Hill Book Co. Textbook designed for courses in occupations or as a reference to counselors and their students. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.
LB 1570 .K28 ELEM JRSR	Behavioral Objectives in Curriculum Development, Educational Technology Publications. A book of selected readings and bibliography on behavioral objectives. Circulation period 3 weeks, suggested for teachers, counselors, and administrators.

Call No.	Book
LB 1131 .P629 ELEM JRSR	Criterion - Reference Measurement, Educational Technology Publications. A series of papers on criterion-referenced measurement as compared to norm-referenced scores. Circulation period 3 wks., suggested for teachers, counselors, and administrators.
HF 5381 .D244 ELEM JRSR	Manpower and Economic Education, Love Publishing Company. Includes units on the individual and the nature of work, the economic world, the manpower market, career opportunities in the American economy and technology, skills and investment in education. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
LB 1027.5 E35 JRSR	Mathematics for Career Education with teacher's guide, Charles E. Merrill Publishing Company. Developed for students interested in practical mathematics. Circulation period 4 wks., suggested for math teachers and teachers of remedial classes and shop classes.
P 90 .H36 1974 JRSR	The World of Communications: Visual Media, McKnight Publishing Company. This text is divided into readings intended to increase the student's perception by having them recognize problems. Circulation period 3 wks., suggested for use by secondary English teachers.
HF 5381 .F884 ELEM JRSR	NVGA Bibliography of Current Career Information, 1973 Edition, National Vocational Guidance Association, Division of APGA. Contains a current career literature listing, career film reviews and a publisher's index. Circulation period 2 wks., suggested for students, teachers, counselors and administrators.
HF 5381 .P43 ELEM JRSR	Perspectives on Vocational Development, American Personnel and Guidance Association. Contains five parts: introducing vocational development (2,3,4) discussing vocational development theory in the past, present and future, also special applications. Circulation period 4 wks., suggested for teachers, counselors, and administrators.
HF 5382 .C869 ELEM JRSR	The Maturity of Vocational Attitudes in Adolescence, American Personnel and Guidance Association. The second volume of the APGA Inquiry Series includes findings and discussion of the Vocational Development Project. Circulation period 2 wks., suggested for counselors, teachers, and administrators.

Call No.	Book
T 65 .S39 ELEM JRSR	Teaching Children about Technology, McKnight Publishing Company. A three-part text to help teachers teach students about the complexities of industry. Circulation period 2 weeks, suggested for use by teachers.
RJ 61 .D155 JRSR	Exploring Careers in Child Care, McKnight Publishing Company. Includes a text, activity manual, and teacher's guide for exploring careers in child care. Circulation period 3 weeks, suggested for home economics teachers in the junior high.
T 353 .F949 JRSR	General Drafting, McKnight Publishing Company. A sample text for beginning drafting with 75 units to give the student a bridf overview of a variety of construction techniques dealing with mechanical and architectural drafting. Circulation period 2 weeks, suggested for beginning drafting students.
JRSR	Career Education Program, Volume II, Houghton Mifflin Company. This notebook consists of a sequence of detailed lesson plans accompanied by duplicating masters and transperencies to reinforce a student's knowledge and understanding of the world of work. Circulation period 3 weeks, suggested for teachers, and counselors, grades 7-9.
HF 5381 .S544 JRSR	Career Exploration and Planning, includes teacher's manual and sample student workbook, Houghton Mifflin Company. This book approaches career development by stressing students' self-awareness and understanding of their own talents and interests. Circulation period 4 weeks, suggested for grades 8-12.
JRSR	The Waiter and Waitress Training Manual, Institutions/Volume Feeding Magazine. A six-part guide for serving food in a restaurant, includes a quiz at the end. Circulation period 2 weeks, suggested for counselors and administrators.
ELEM JRSR	Developing Student's Potentials, Education Resources Division, Capitol Publications, Inc. Provides the reader with information on three programs that have been conducted in a variety of settings with research and references: Achievement Motivation Training, Human Potential Group Training, Eliminating Self Defeating Behavior Training. Circulation period 2 weeks, suggested for counselors and teachers.

Call No.	Book
HF 5381 .U3 JRSR	Introduction to Occupations, Instructional Materials Laboratory. This material is designed to provide guidelines for teachers helping young persons learn about decision making in the area of occupational choice. Circulation period 3 weeks, suggested for junior high teachers of home economics.
JRSR	Job Applications and Interviews, Instructional Materials Laboratory. Divided into nine chapters which cover such areas as career opportunities, self-evaluation, job interview, tests and forms, money management, etc. Circulation period 4 weeks, suggested for teachers and counselors at the secondary level.
HF 5381 .B417 JRSR	My Career Guidebook, includes counselor's and teacher's manual, Benziger Bruce and Glencoe, Inc. A sample guidebook that contains sections devised to help the user prepare himself for a career. Circulation period 1 week, suggested for junior high and secondary students.
HF 5383 .S72 JRSR	How to Get a Job, Benziger Bruce and Glencoe, Inc. This book is designed to teach a person how to hunt successfully for the job he wants. Circulation period 1 week, suggested for junior high and secondary students.
HF 5381 .S865 JRSR	How to Choose Your Work, Benziger Bruce and Glencoe, Inc. Divided into three parts: (1) What do you want to do? (2) What can you do? (3) Kinds of work available to you. Circulation period 1 week, suggested for junior high or secondary students.
ELEM JRSR	The Parents' Role in Career Development, The National Vocational Guidance Association. To enable parents to help their children make their occupational choice. Circulation period 1 week, suggested for teachers, counselors and administrators.
HF 5381 .N353 ELEM JRSR	Guidelines for the Preparation and Evaluation of Career Information Media, National Vocational Guidance Association. A set of guidelines for filmstrips, films and occupational literature. Circulation period 2 weeks, suggested for teachers and counselors.

Call No.	Book
QA 11 .L939 JRSR	Career Mathematics: Industry and the Trades, Teacher's Edition, Houghton Mifflin Company. Sample mathematics textbook for students interested in industrial or trade careers. Circulation period 1 week, suggested for mathematics and industrial arts teachers.
QA 40 .L586 JRSR	Mathematics for Daily Living, with teacher's annotated edition of accompanying workbook, McCormick-Mathers. Sample textbook emphasizing consumer mathematics. Circulation period 2 weeks, suggested for mathematics teachers.
TA 330 .S56 JRSR	Mathematics for Industrial Careers, McGraw-Hill Co. Designed to provide a sequential course in electricity, electronics, and the metal trades. Circulation period 4 weeks, suggested for mathematics teachers.
HF 5381.2 .R48 JRSR	Careers: Exploration and Decision, (with teachers guide) Prentice Hall. This contains information and ideas that will help the reader make the best possible career choice. Circulation period 2 weeks, suggested for use with junior high and secondary level.
HF 5381 .G28 .D3 JRSR	Decisions and Outcomes, (with leaders guide) College Entrance Examination Board. This provides a variety of settings and situations to provide participants with the opportunity of developing and applying decision-making skills. Circulation period 2 weeks, suggested for use with secondary level.
JRSR	Career Education Job Placement Directory, by State Fair Community College. Information on local area businesses, industries, community resources, and sources of occupational information. Circulation period 4 weeks, suggested for teachers, counselors, administrators, and high school students.
JRSR	Art Career Guide, Watson-Guptill Publications. Describes the nature of the work and the training required in each of the major art fields. Circulation period 4 weeks, suggested for art students, teachers, guidance counselors in the secondary level.

Call No.	Book
HF 5383 .F854 JRSR	How to Get a Job, by The President's Committee on Employment of the Handicapped. Outlines the steps necessary for finding a job. Circulation period 1 wk., suggested for grades 9-12.
HD 6278 .C686 1975 JRSR	College Placement Annual 1975, by The College Placement Council, Inc. Presents the occupational needs anticipated by corporate and governmental employers who normally recruit college graduates. Circulation period 3 wks., suggested for teachers, counselors, and administrators.
HF 5382 .C686 JRSR	Organizing Workshops, by the College Placement Council, Inc. Provides a basis for sound office operations and a professional outlook. Circulation period 4 wks., suggested for teachers, counselors, and administrators.
Z 5817.2 .I8 JRSR	A Selected List of Educational Material, by Cornell University. Designed to alert teachers to the wide variety of instructional aids available from commerce and industry. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
JRSR	Changing Trends in the Plans of High School Seniors, by Purdue University. Reports data concerning the vocational, educational, and employment plans and aspirations of students. Circulation period 2 wks., suggested for teachers, counselors and administrators.
HF 5382 .03 JRSR	Pre-Employment Model, by Ohio State Department of Education. Designed to aid individuals on school districts currently involved in or working toward school placement services. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
JRSR	Missouri Directory of Trade and Professional Associations, by University of Missouri. Includes information about each association and the name of an officer who may be contacted for further information. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
LB 2803 .M691 JRSR	Vocational-Technical Schools and Programs in Missouri, by Missouri State Department of Education. Provides a source of information pertaining to vocational-technical schools and programs in Missouri. Circulation period 2 wks., suggested for teachers, counselors, and administrators.

Call No.	Book
HF 5381 .C2657 ELEM JRSR	Career Guidance: A Handbook of Methods, Charles E. Merrill Publishing Co. A professional reference book in Career Programs including a compendium of earlier guidance methods. Circulation period 3 wks., suggested for counselors.
HF 5381 H68 1974-75 JRSR	Occupational Outlook Handbook--1974-75 Edition, by U.S. Department of Labor. Provides occupational information that broadens the knowledge of choices available to young people. Circulation period 2 wks., suggested for grades 9-12.
Z 244 .3 .B785 JRSR	Graphic Communications, by McKnight. Each section explains one of the five major concepts of Graphic Communications, providing an overview of (1) communications; (2) design; (3) image generation; (4) preproduction and production; and (5) binding, finishing, and packaging. Circulation period 2 wks., suggested for grades 9-12.
JRSR	A Leader's Guide to Great Expectations, by American Association of University Women, A program for junior and senior high girls to counsel them in making wise decisions concerning the variety of roles they may engage in during their lifetime. Circulation period 1 wk., suggested for junior and senior high level.
JRSR	Deciding, by College Entrance Examination Board. To assist students in making well-informed and well-considered decisions. Circulation period 2 wks., suggested for junior high and secondary level.
JRSR	Exploring Careers in Industry, by McKnight. This book provides content and learning experience through which students may explore careers related to industry. Circulation period 2 wks., suggested for junior high and secondary level.

Titles of units include:

Industry: An Overview

Graphic Communications Processes: Designing, Planning, Drawing, and Printing

Materials and Processes of Production

Production, Transmission, and Application of Power

Mass Production Processes

Call No.	Book
JRSR	Practice for Navy's Basic Test Battery...and for the Marine Corps Basic Classification Test Battery, by ARCO. Requested by a math teacher and donated by the Navy Recruiter, this book can provide incentive in different subject areas for those students interested in the Navy as a career. Areas covered include social studies, vocabulary, verbal analogies, numerical relations, mechanical insight, tool recognition, electrical theory, clerical speed and aptitude, etc. Circulation period 3 wks., suggested for secondary level.
JRSR	Careerism: How to Select a Successful Career, by WWWWW. Explains the who, what, why, when, and where of careerism. It covers such areas as; (1) Choosing the Right Occupation,(2) Choosing the Right Industry, (3) Choosing the Right Company,(4) Choosing the Right Boss. Circulation period 2 wks., suggested for grades 9-12.
HF 5382 .M296 JRSR	What Can I Do With a Major In...?, by Saint Peter's College Press. Provides information about the wide variety of occupational possibilities each major provides. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
HF 5382 .K146 JRSR	Pathways to Careers, by Globe Book Company. Discusses the steps necessary in finding the right career. Titles of units are: Thinking About Your Career Preparing for Your Career Getting the Job You Want Succeeding in Your Career Circulation period 2 wks., suggested for the secondary level.
JRSR	What About College?, by Missouri Public Service. Provides information to help the student decide the if, when, where, and how about college. Circulation period 1 wk., suggested for the secondary level.
JRSR	Annotated Bibliography of Career-Relevant Literature at the Junior and Senior High School Level, by Cornell Institute for Research and Development. A bibliography of career-relevant information. Circulation period 2 wks., suggested for teachers, counselors, and administrators.

Call No.	Book
LB 2343 .S58 JRSR	Career Counseling and Placement in Higher Education: A Student Personnel Function, by College Placement Council, Inc. Designed to give a valid overview on the field of career counseling and placement. Circulation period 3 wks., suggested for teachers, counselors, and administrators.
HQ 1420 .F37 JRSR	The Rights of Women, by Hayden Book Company. A comprehensive look at the social, educational, and professional roles of today's women. Interviews, case studies, statistical data, and magazine articles on aspects of the female role from various outlooks. (Part of the American Value Series.) Circulation period 2 wks., suggested for grades 7-12.
HD 6055 .C737 JRSR	When I Grow Up I'm Going to be Married, by Commission on the Status of Women. A game which illustrates how time and circumstances affect women. Circulation period 2 wks., suggested for grades 9-12.
LC 1044 .S37 JRSR	Career Education Program, Vol. II, by Houghton-Mifflin. Designed to encourage young people to consider important work attitudes, investigate the occupations available, and use this information in deciding their own career. Circulation period 4 wks., suggested for grades 7-9.
JRSR	Mort's Guide to 100,000 Vacation Jobs, by CMS Publishing Co., Inc. This describes the jobs, location, nature of the work, wages, who to contact, when to make the contact, and when the job is open. Circulation period 1 wk., suggested for secondary level.

Call No.	Book
JRSR	Career Education for Gifted and Talented Students, by Olympus Publishing Company. Concerns itself with explaining career education and value considerations in career education for the gifted and talented person. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
JRSR	Practical Approaches to Individualizing Instruction, by Parker Publishing Company, Inc. A step-by-step guide on how-to-individualize a program to meet student's learning needs. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
JRSR	Teaching American History: The Quest for Relevancy, by Avon Books. This book contains specific lessons which focus on how a study of the American past might be made more relevant to students' needs. Circulation period 2 wks., suggested for teachers, counselors, administrators.
JRSR	What Color is Your Parachute? by Ten Speed Press. A manual for the job hunter dealing with how to do the job-hunt effectively. To be used in conjunction with Where Do I Go From Here With My Life? Circulation period 3 wks., suggested for secondary level.
JRSR	Where Do I Go From Here With My Life? by The Seabury Press. This book is designed to show students how to analyze their capabilities, accomplishments, and interests to help them plan their future career and their life. To be used in conjunction with What Color is Your Parachute? Circulation period 3 wks., suggested for teachers, counselors, and the secondary level.
JRSR	Exploring Data Processing Careers, by South-Western Publishing Co. A combination text-workbook designed to inform students about data processing careers. Circulation period 1 wk., suggested for junior high and secondary level.

JRSR BOOK SERIES

Call No.	Book
	The Consumer Education Series, Pendulum Press, Inc. Three sample books from a series.
HF 5381 .S864 JRSR	Viewing Your Career. Eight chapters covering different aspects on careers such as: choosing a location, part-time jobs, full-time jobs, labor unions, etc. Circulation period 2 weeks, suggested for grades 9-12.
TX 335 .R35 1973 JRSR	Consumer Purchasing. Seven chapters showing the consumer various situations of consumer spending and explaining the when, where and why's of the money involved. Circulation period 2 weeks, suggested for grades 9-12.
HG 179 .J56 JRSR	Dollar Power. Ten chapters showing the consumer how to handle his money more wisely. Circulation period 2 weeks, suggested for grades 9-12.
	What Job For Me? Series, McGraw-Hill Book Company. Two copies available from a series of booklets designed to help young people find out more about jobs and the world of work. Sample copies available: Ginny the Office Assistant, Phil the File Clerk. Circulation period 1 week, suggested for use by junior high and secondary students.

Call No.	Book
JRSR	Values and Decisions, by Xerox. Focuses on a significant historic issue in which decision makers and their advisors go through the dilemma of decision making. Includes the following titles:

Intervention: The Vietnam Buildup

Political Justice: The Haymarket Three

Isolation: The U.S. and the League of Nations

Union or Secession: The Compromise of 1850

Conquest: Manifest Destiny and Mexican Land

Confrontation: The Cuban Missle Crisis

Neutral Rights: Impressment and the Chesapeake Outrage

Impeachment: The Presidency on Trial

Circulation period 2 wks., suggested for junior high and secondary level.

JRCR — The Black Experience in America Series, by Xerox. Each unit includes episodes in United States history which is relevant to both blacks and whites. Includes the following titles:

Pioneers and Planters: Black Beginnings in America

The Hurricane Promise: Free Negroes Before the Civil War

Rebellion and Protest: The Anti-Slavery Crusade

Forward for Freedom: Mr. Lincoln and the Negroes

Reign of Jim Crow: Separatism and the Black Response

Northward Bound: From Sharecropping to City Rights

Glory Road: The Visible Black Man

Struggle for a Nation's Conscience: Civil Rights

Pride and Power: From Watts to Mexico City

Circulation period 2 wks., suggested for junior high and secondary level.

Call No.	Book
	Arco-Rosen Career Guidance Series, by ARCO. This series covers all the major careers in practical terms for the person who is interested in more than a job. Circulation period 2 wks., suggested for grades 9-12. Titles include:
NK 2116 .G7 1971 JRSR	Your Future in Interior Design
JK 716 .G68 1971 JRSR	Your Future in the Federal Government
LB 1775 .S52 1971 JRSR	Your Future in Elementary School Teaching
HF 5547.5 .N68 1971 JRSR	Your Future as a Secretary
TT 958 .F27 1971 JRSR	Your Future in the Beauty Business
HF 5549.5 .E45 W53 1971 JRSR	Your Future in Jobs Abroad
TT 507 .F35 1971 JRSR	Your Future in Fashion Design
TL 147 .T32 1971 JRSR	Your Future in Automotive Service

Call No.	Book
TL 521.312 .L4 1971 JRSR	Your Future in NASA
HV 8143 .G2 1971 JRSR	Your Future in Law Enforcement
R 728.8 .C44 1971 JRSR	Your Future in Medical Assisting
TL 561 .S3 1971 JRSR	Your Future as a Pilot
RB 37 .P28 1971 JRSR	Your Future in Medical Technology
R 690 .K3 1971 JRSR	Your Future as a Physician
RK 60 .V47 1971 JRSR	Your Future in Dentistry
HD 1379 .D8 1971 JRSR	Your Future in Real Estate
TX 164 .P33 1971 JRSR	Your Future as a Home Economist
TK 7845 .N48 1971 JRSR	Your Future in the High Fidelity Industry

Call No.	Book
HF 5381 .W77 1971 JRSR	Your Future in Your Own Business
QA 76.25 .D3 1971 JRSR	Your Future in Computer Programming
RA 972.5 .K5 1971 JRSR	Your Future in Hospital Work
QC 783.8 .T45 1971 JRSR	Your Future in Nuclear Energy Fields
Z 278 .C67 JRSR	Your Future in Publishing
HG 8053 .S58 1971 JRSR	Your Future in Insurance
RS 122.5 .K7 1971 JRSR	Your Future in Pharmacy
TT 958 .G39 1971 JRSR	Your Future in Beauty Culture
HG 2491 .B6 1971 JRSR	Your Future in Banking
TR 154 .K45 1974 JRSR	Your Future in Photography

Call No.	Book
TX 164 .A4 1971 JRSR	Your Future as a Dietitian
TX 911 .S6 1971 JRSR	Your Future in Hotel Management
TS 227.7 .B4 1971 JRSR	Your Future in Welding
TX 763 .025 1971 JRSR	Your Future in the Bakery Industry
RT 82 .R56 JRSR	Your Future in Nursing Careers
HF 5548.2 .B46 1971 JRSR	Your Future in the Electronic Computer Field
TP 492.7 .D27 1971 JRSR	Your Future in Air Conditioning and Refrigeration
HE 8689.6 .R53 JRSR	Your Future in Broadcasting
TK 7845 .K4 1971 JRSR	Your Future as an Electronic Technician

Call No.	Book
RK 60.5 .F7 1971 JRSR	Your Future in Dental Assisting
TX 945 .W43 1971 JRSR	Your Future in Restaurants and Food Service

JRSR KITS

Call No.	Kit
KT JRSR CE1	Duo-Media Career Education Kit, Career Education Associates. Cassette and photo-guide, sample copy on physician's assistant. Circulation period 2 weeks, suggested for 7-12.
KT JRSR CE2	Job Experience Kit, Science Research Associates, Inc. Work simulation experiences in 20 self-contained kits (may be checked out singly if kit is not in use). Circulation period 1 week, suggested for 7-11.

Occupations included:

Appliance Serviceman	Beautician
Plumber	Secretary
Carpenter	Veterinarian
Draftsman	Librarian
Electronic Technician	Lawyer
Accountant	Police Officer
Medical Technologist	Elementary School Teacher
Truck Driver	Automobile Mechanic
X-ray Technician	Motel Manager
Designer	Salesperson

KT JRSR CE3	The Changing Work Ethic, Guidance Associates. Two filmstrips with cassettes and discussion guide. Part I--You and Work; Part II--Work and Society. Circulation period 1 week, suggested for 7-12.
KT JRSR CE4	Preparing for After Graduation, Universal Education and Visual Arts. Four filmstrips with cassettes and teacher's guide. Includes Looking for a Job?, Where to Start, Your First Job Interview, The Job Is Yours, Furthering Your Education. Circulation period 2 weeks, suggested for 10-12.
KT JRSR CE5	KNOW-Knowledge Needed to Obtain Work, Science Research Associates, Inc. A guide presenting an organized approach to job hunting, including transparencies and discussions. Circulation period 2 weeks, for use by teachers and counselors.
KT JRSR CE6	Careers in Agriculture, Vocational Education Production. Eight filmstrips and cassettes covering the role and importance of agriculture in our society with career exploration and planning information. Circulation period 2 weeks, suggested for 9-12.

Call No. Kit

Careers include:

Careers in Farm Supplies
Careers in Government Services
Careers in Farm Services
Careers in Farm Machinery Sales and Service
Careers in Animal Industry
Careers in Crops
Careers in Natural Resource Management
Careers in Ornamental Horticulture

KT JRSR CE7 World of Work: Readings in Interpersonal Relationships, McGraw-Hill Book Co. Fifty illustrated fiction stories of four pages each to acquaint the reader with job-worker situations. Multiple choice, short answer, and discussion questions are provided. All in a permanent storage box. Circulation period 4 weeks, suggested for 8-12.

KT JRSR CE8 Office Worker Series, Interpretive Education. Five filmstrips with cassettes and brief teacher manual:

The Office
Getting Along
The Way You Look
Using the Telephone
Filing

Circulation period 2 weeks, suggested for 9-12.

KT JRSR CE9 Payroll Clerk, Mt. San Jacinto College. Skilled training in computing the payroll, including cassettes, student materials, and teacher's key. Circulation period 4 weeks, suggested for 10-12.

KT JRSR CE10 Career Education Program, The New York Times. Guide for using The New York Times School Service in the classroom, includes career awareness material. Circulation period 2 weeks, suggested for junior high and high school teachers of English or Social Studies.

KT ELEM JRSR CE11 Career Awareness Program (Featuring Popeye the Sailor), King Features Education Division. Full color comic books covering 15 career clusters with poster, class career awareness bingo game, teaching guide. Circulation period 3-5 weeks, suggested for 4-8.

Call No. Kit

KT ELEM JRSR CE12 — Educator's Kits, Let's Save the Children, Inc. Units based on experiences of popular black personalities (Roberta Flack, Isaac Hayes, The Jackson Five, Nikki Giovanni, Flip Wilson, The Staple Singers, Marvin Gaye, Rev. Jesse Jackson). Includes books, teachers guide, puzzles, and coloring books. Circulation period 4 weeks, suggested for K-8.

KT ELEM JRSR CE13 — Compulearn Career Education Program, Random House. A battery operated console used with program cards. Helps students progress through series of questions on interests, career information, etc. Includes educator guides, student guides, bibliographies, career index, console and program cards. Circulating period 3 weeks suggested for K-12.

KT JRSR CE14 — World of Work, Part I, Eyegate. Eight filmstrips with cassettes covering eight areas of employment, also includes teacher's guide. Circulation period 1 week suggested for junior high and secondary students. (Educable Mentally Retarded).

Titles include:
- What is Your Future In the Changing World?
- Automobile Mechanic
- TV and Radio Repair
- Tool and Die Maker
- Electrician
- Printer
- Sheet Metal Worker

KT JRSR CE15 — World of Work, Part II, Eye Gate. Six filmstrips with cassettes covering six areas of employment, also includes teacher's guide. Circulation period 1 week, suggested for junior high and secondary students. (Educable Mentally Retarded).

KT JRSR CE16 — Education for Occupations, Eye Gate. Eight filmstrips with cassettes covering eight areas of employment. Circulation period 1 week, suggested for junior high and secondary students (EMR).

Titles include:

- Working in a Service Station
- Working in a Supermarket
- Working in the Printing Industry
- Working in the Food Services
- Working With Business Machines
- Working in Manufacturing
- Working in Building Maintenance
- Working in a Hospital

KT ELEM JRSR CE17 — The Paycheck Puzzle by Guidance Associates. A two part series. Part I explains automatic and voluntary payroll deductions. Part II examines types and variations of benefits young workers may encounter. Circulation period 1 week, suggested for K-12.

KT
ELEM
JRSR
CE18

Jobs and Gender by Guidance Associates. Explores how sexual barriers and stereotypes have influenced men's and women's vocational choices; discusses changing concepts of "masculine" and "feminine" work roles through male teachers, a male nurse, etc. Circulation period 1 week, suggested for K-12.

KT
JRSR
CE19

Career Education, Series A, Interpretive Education. Five filmstrips with cassettes and teacher's manual. A multi-media approach designed to give the student a broad, general overview of jobs in the service, factory, sales and distributive areas. Circulation period 1 week, suggested for secondary students.

Titles include:
- Introduction to Careers
- Service Jobs
- Factory Jobs
- More Factory Jobs
- Sales and Distribution

KT
JRSR
CE20

Career Education, Series B, Interpretive Education. Five filmstrips with cassettes and teacher's manual. Multi-media program to give the students an awareness of many different occupations. Circulation period 1 week, suggested for secondary students.

Titles include:
- Explanation of Jobs
- Structural Jobs
- Bench Work Jobs
- Agricultural Jobs
- Miscellaneous Jobs

KT
JRSR
CE21

Dynamic Consumer Decision-Making, J. C. Penney Company, Inc. A notebook with two cassettes, 20 slides and example pages to help consumers to learn to improve and be more conscious of their decision-making. Circulation period 4-6 weeks, suggested for secondary students.

KT
JRSR
CE22

Getting a Job, Educational Design, Inc. Twelve cassettes and 24 student record booklets plus instructor's guide in a permanent storage box to enable the student to prepare for problems he will encounter when he is looking for work. Circulation period 4 weeks, suggested for high school students, graduates or dropouts.

Titles include:
- Contacting Job Interviews
- The Agency Interview
- Words You Must Learn
- What You Need to Know to Fill Out an Application Form
- Job Interview Skills: Making a Good Impression
- Job Interview Skills: Selling Yourself
- Job Interview Skills: The Positive Approach
- Job Interview Skills: The Wrap-Up
- Job Interview Skills: Handling Difficult Questions
- Campus Interview
- Discussion Tape A, B, and C.

Call No.	Kit
KT JRSR CE23	Careers in the Fashion Industry, Butterick Fashion Marketing Company. Filmstrips, cassettes, sample sheets and teacher's guide designed to present an overview of the fashion industry. Circulation period 4 weeks, suggested for secondary level.
KT JRSR CE24	Careers in Health, Butterick Fashion Industry. Explores the variety of health specialists who assist in the process of diagnosis and treatment in a typical community hospital. Circulation period 4 weeks, suggested for junior high and secondary level.
KT JRSR CE25	Careers in the Food Industry, Butterick Fashion Industry. Centers on the various careers involved with nutrition and dietetics, and with consumer affairs as a link between the consumer of food products and the producer or merchandiser of food products. Circulation period 4 weeks, suggested for junior high and secondary level.
KT JRSR CE26	Family Financial Statement, by South-Western Publishing Co. An introduction for young people to financial management in order to prepare them for the responsibility of money management. Circulation period 4 weeks, suggested for 9-12.
KT JRSR CE27	Life Issues of Older Teens, by Society for Visual Education. A four part kit with filmstrips and cassettes with titles which include: What Do You Believe About Life? Choosing a Career Preparing for Marriage Relating to those in Authority Circulation period 1 week, suggested for junior high and secondary level.

57

Call No.	Kit
KT JRSR CE28	Finding & Getting a Job, by Society for Visual Education Inc. The titles include: Choosing Your Career Finding a Job Opening Applying for a Job The Job Interview Your First Months on the Job You and the Changing World of Work Circulation period 2 weeks, suggested for junior high and secondary level.
KT JRSR CE29	Setting Goals, by Guidance Associates. Illustrates the process of testing and questioning involved in choosing the goals or tasks that best suit one's abilities and interests. Circulation period 1 week, suggested for junior high and secondary level.
KT JRSR CE30	Interpersonal Relationships, by Guidance Associates. Designed to help students become more aware of the importance of relationships with others in several ways, such as the influence of one's self-concept on interpersonal relationships. Circulation period 1 week, suggested for junior high and secondary level.
KT JRSR CE31	A Career in Computers, by Pathescope Educational Films and Associated Press. It gives a broad picture of careers in computers and conducts interviews with people working successfully in job situations. Circulation period 1 week, suggested for junior high and secondary level.

Call No.	Kit
KT JRSR CE32	Understanding Your Parents, by Guidance Associates. In-depth interviews with young people and parents develop insight into factors affecting parent/child relationships; ways to build satisfying communication in the home. Circulation period 1 week, suggested for 7-12.
KT JRSR CE33	Career Values: What Really Matters to You, by Guidance Associates introduces concept that personal values are a key ingredient in job satisfaction. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE34	What You Should Know Before You go to Work, by Guidance Associates. Begins with ways to narrow career choices and goes through necessary information on obtaining a job. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE35	Job Hunting: Where to Begin, by Guidance Associates. Helps work bound youngsters prepare to organize an effective job search. It discusses such things as where to begin looking for a job and problems which may arise while job hunting. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE36	Your First Week on the Job, by Guidance Associates. A two-part kit which deals with: Priorities, Office Manners, Making a Phone Call, Office Grooming, Taking a Break and Dealing with complaints. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE37	Testing, Testing, Testing, by Guidance Associates. Introduces the different types of tests and gives practical tips on reading instructions, reviewing answers and handling various kinds of questions. Circulation period 1 week, suggested for junior and secondary levels.
KT JRSR CE38	Job Attitudes. Liking Your Job and Your Life, by Guidance Associates. Students meet various workers who enjoy both their work and their life. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE39	Job Attitudes: A Job that Goes Someplace. Activity involves students in decision-making situations and stresses how prejob planning and on-the-job attitude directly affects career programs. Circulation period 1 week, suggested for junior high and secondary levels.

Call No.	Kit
KT JRSR CE40	Forming Beliefs, by Guidance Associates. To help the adolescent become more sure of himself and gain psychological independence. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE41	Developing Values, by Guidance Associates. To help the adolescent recognize and understand values, both his own and someone else's. Circulation period 1 week suggested for junior high and secondary levels.
KT JRSR CE42	Understanding Emotions, by Guidance Associates. To help students achieve a better understanding of the dimensions of emotions and emotional expression. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE43	Shaping Identity, by Guidance Associates. Explores the concept of identity in terms of individuality and non-conformity. It also examines the influences of heredity and environment on identity. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE44	Improving Your Study Skills, by Guidance Associates. To help students develop an organized approach to studying, to make effective use of time by scheduling it carefully and sensibly. Circulation period 1 week, suggested for junior high and secondary levels.
KT JRSR CE45	Pistachio Productions, by Judy Rae Kuhlman. To help children identify various careers through a developmental process of work association. Circulation period 2 weeks, suggested for junior high and secondary levels.
KT JRSR CE46	Careers in Housing: The Interior, by Butterick Fashion Industry. Designed to give an idea of what an interior designer's job entails. Circulation period 4 weeks, suggested for junior high and secondary level.

Call No.	Kit
KT JRSR CE47	Preparing for the Jobs of the 70's, by Guidance Associates. To provide the student with a guide to the various career opportunities that are available in the 70's decade. Circulation period 1 wk., suggested for vocational counselors and junior-senior level.
KT JRSR CE48	Typical Gyps & Frauds, by Changing Times Education Service. (Complete with records and cassettes.) To help students learn to recognize and avoid fraudulent schemes and deceptive practices. Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE49	So You Want to Use Credit, by Changing Times Education Service. (Complete with records and cassettes.) To prepare students for the wise use of credit. The stories are open-ended to leave the resolution of the problem to the student. Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE50	Banking and Banking Services, by Changing Times Education Service. (Complete with records and cassettes.) To alert students in handling their money problems through the use of the many beneficial financial services available and to show how to make comparisons and decisions. Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE51	Let's Go Shopping, by Changing Times Education Service. (Complete with records and cassettes.) Designed to teach students how to meet personal and family needs with limited means in a marketplace that presents unlimited choices requiring basic skills and understanding. Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE52	So You Want Wheels, by Changing Times Education Service. (Complete with records and cassettes.) Deals with teaching youth the important principles of shopping for an automobile--principles that will be transferred to shopping for other items. Circulation period 1 wk., suggested for junior-senior high.
KT JRSR CE53	Money Management, by Changing Times Education Service. Cartoons, questionnaires, role-playing situations and other learning resources help students develop the practical skills they need in handling money everyday. Circulation period 2 wks., suggested for grades 9-12.

Call No.	Kit
KT JRSR CE54	The Marketplace, by Changing Times Education Service. To teach students to evaluate advertising, show them how to avoid common gyps and frauds, and alert them to the importance of warranties, guarantees and labels. Circulation period 2 wks., suggested for secondary level.
KT JRSR CE55	Consumer Law, by Changing Times Education Service. Designed to inform students of their legal rights and responsibilities, show them the relationship of law to consumer rights and acquaint them with the channels for their grievances. Circulation period 2 wks., suggested for secondary level.
KT JRSR CE56	Insurance, by Changing Times Education Service. This kit will enable students to gain understanding of all types of insurance, to be able to define their goals and expectations involving insurance, and to sharpen their skills as insurance consumers. Circulation period 2 wks., suggested for secondary level.
KT JRSR CE57	Saving and Investing, by Changing Times Education Service. To show students ways to make their money grow through regular savings plans, help them understand the workings of the stock market and savings institutions, and also alert them to the advantages and risks of real estate and commodity investing. Circulation period 2 wks., suggested for grades 9-12.
KT JRSR CE58	Housing, by Changing Times Education Service. To familiarize young consumers with legal and financial aspects of buying and renting, help them discover the hidden as well as obvious costs of maintaining a home, and guide them in deciding which is the better alternative for themselves--buying or renting. Circulation period 2 wks., suggested for grades 9-12.
KT JRSR CE59	Hat in the Ring, by Changing Times Education Service. Students take on the roles of candidates and travel from state to state competing with other candidates. Circulation period 1 wk., suggested for grades 9-12.
KT JRSR CE60	Coalition, by Changing Times Education Service. Nominated candidates vie for the support of special interest groups in an effort to capture the electoral college votes to win the presidency. (To be used after Hat in the Ring.) Circulation period 1 wk., suggested for grades 9-12.
KT JRSR CE61	A Career in Engineering, by Pathescope Educational Films, Inc. Describes jobs available in the field of engineering and uses interviews to

Call No.	Kit
	determine the training, job satisfactions, and opportunities. Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE62	The Metric System, by McGraw-Hill Films. Designed to give a brief account of the history of measurement and an explanation of the metric system. Circulation period 1 wk., suggested for junior high level.
KT JRSR CE63	The Future of the Family, by Guidance Associates. This filmstrip proposes that the problems which are making the nuclear family structure complicated can and are being dealt with. Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE64	WORK-Widening Occupational Roles Kit, by Science Research Associates. A speciman set of the larger WORK. (A description follows.) Circulation period 1 wk., suggested for junior high and secondary level.
KT JRSR CE65	WORK-Widening Occupational Roles Kit, by Science Research Associates. To help the student understand himself and as a result give him the tools for intelligent vocational planning as he matures. Circulation period 2 wks., suggested for junior high and secondary level.
KT JRSR CE66	Munson Career Game Box, by Houghton-Mifflin. Numerous games used in helping the student decide his areas of interest and ability. Circulation period 2-3 wks., suggested for grades 7-12.
KT JRSR CE67	ERC Planet Management Game, by Houghton-Mifflin. Ecological game situations in all areas of the environment. Circulation period 2 wks., suggested for grades 7-12.
KT JRSR CE68	Livelyhoods: Careers for Your Lifestyle, by Houghton-Mifflin. To create greater awareness of careers and their resulting lifestyles. Circulation period 4 wks., suggested for secondary level.
KT JRSR CE69	DECISIONS: A Values Approach to Decision Making, by Charles E. Merrill Publishing Company. Provides an opportunity for students to examine the components of decision making and the relationship of values to decision making. Circulation period 2 wks., suggested for junior high and secondary level.

Call No.	Kit
KT JRSR CE70	Deciding, by College Entrance Examination Board. This material places an emphasis on practice in using the concepts and skills of decision-making. Circulation period 3 wks., suggested for junior high and secondary level.
KT JRSR CE71	Consumer Advertising, by Proctor and Gamble. To explain the story of advertising to students as the major advertisers know and practice it. Circulation period 1 wk., suggested for secondary level.
KT JRSR CE72	The Job Game, by Employment Training Corporation. A presentation of training and counseling to provide students with information and ideas on job changes. Circulation period 1 wk., suggested for secondary and post-secondary level.
KT JRSR CE73	Life/Career Development System, by Human Development Services, Inc. Deals with such issues as life roles, values, goals, life-style preferences, coping skills, and personal barriers as they relate to making rewarding and satisfying choices and decisions throughout a lifetime. Circulation period made by arrangement, suggested for grades 9-12.
KT JRSR CE74	Careers in Office Services, by Butterick Publishing Company. Designed to make the student aware of the range of occupations in office services and their functions. Circulation period 4 wks., suggested for junior high and secondary level.
KT JRSR CE75	Careers in Child Care and Youth Guidance, by Butterick Publishing Co. Investigates some of the careers in the field of child care and child social services. Circulation period 4 wks., suggested for junior high and secondary level.
KT JRSR CE76	Careers in Consumer Affairs, by Butterick Publishing Co. Introduces students to the world of consumer education and those jobs that are available within the field. Circulation period 4 wks., suggested for junior high and secondary level.
KT JRSR CE77	The Working World of a Secretary, by Eye Gate. Describes the basic office practices and procedures such as memos, mail and the telephone. Circulation period 2 wks., suggested for grades 9-12.

Call No.	Kit
KT JRSR CE78	Games/Simulations, by California Learning Simulations. Educational games and simulations to promote social interaction and help to improve verbal communications. Though principal emphasis is on mathematics and communication skills, social studies and science also are treated. Each is coded to areas. Simulations may be used individually or in units. No special equipment is necessary. Circulation period 4 wks., suggested for grades 7-9.

JRSR PERIODICALS

Volume and Number	Name Publisher
P JRSR	CAREER WORLD, Curriculum Innovations, Inc. Circulation period 2 weeks, suggested for 7-12.
	Major topics covered:
I-2 Oct. 72	Engineers and Engineering Technicians
I-3 Nov. 72	Communications and Media Home Economics Careers in the Building Trades
I-4 Dec. 72	Air Transportation Business and Office
I-5 Jan. 73	Careers in Psychology
I-6 Feb. 73	Opportunities in the Criminal Justice System Apprentice Training
I-8 Apr. 73	Health Careers
I-9 May 73	Oceanography Insurance Careers
II-5 Jan. 74	Computer Careers and Other White Collar Jobs Electronic Technicians Tool and Die Makers
II-6 Mid-Feb. 74	Working for Uncle Sam
II-7 Mar. 74	Jobs in Journalism
II-8 Apr. 74	Marketing and Distribution
II-9 May 74	Agribusiness

Volume and Number	Name Publisher
	CAREER WORLD, cont.
III-2 Oct.74	Home Economics Careers
III-4 Dec. 74	Recreation Careers Merchant Marines Police Officer Telephone Operators
III-1 Sept. 74	Producing, Using, and Controlling Energy Actors and Actresses Postal Clerks Day Care Aids
III-9 May 75	Careers in Selling Wastewater Treatment Plant Operators Shorthand Reporters Veterinarians
III-8 Apr. 75	Self-Employment
III-3 Nov. 74	Careers in the Building Trades
III-6 Feb. 75	Health Careers Executive Housekeepers Divers
III-5 Jan. 75	Careers in Trucking Lawyers Lithographic Printers Jobs With Horses
III-7 Mar. 75	Repair Persons and Mechanics Public Relations Specialists Photographers Psychologists
P JRSR	Job Sheets, by Alumnae Advisory Center, Inc. Circulation period 2 wks., suggested for junior high and secondary level. Titles include:
Nov. 74	Acting
Jan. 73	Airline Flight Attendant
Apr. 72	Ecology
June 74	Legal Assistant
Jan. 73	Mathematics in Business
July 74	Medical Support Personnel
Oct. 74	Modeling
Sept. 72	Music
Mar. 74	Nursing
Oct. 74	Police Work
July 74	Psychology

Volume and Number	Name Publisher
July 74	Secretary
Jan. 73	Speech Pathology and Audiogy
Dec. 74	Teaching
P JRSR	Focus on Guidance, by Love Publishing Company. Circulation period 1 week, suggested for teachers, counselors, and administrators. Titles include:
May 75	Counseling Trends and Role Identification
June 75	Nonverbal Communication
P JRSR	18 Almanac: A Handbook for Leaving High School, 1973 Approach 13-30 Corporation. Circulation period 1 wk., suggested for high school seniors and counselors. Copy of handbook published annyally for high school seniors at the cost of $2 per copy.
P JRSR	EMPHASIS CAREER EDUCATION, Emphasis Inc. Circulation period 2 wks., suggested for 9-12.
P JRSR ELEM	CAREER EDUCATION DIGEST, Educational Properties, Inc. Monthly magazine of information and materials related to career education. Circulation period 2 wks., suggested for teachers, counselors, and administrators.
May 73	
June/July 73	
Sept./Oct. 73	
Nov. 73	
Dec. 73	
Jan. Feb. 74	
Mar. 74	
Apr./May 74	

JRSR FILMSTRIPS

Call No.	Filmstrip
FS JRSR CE1	Are You Looking Ahead?. Eye Gate. Ten filmstrips with a teacher's manual designed to prepare students mentally, socially and emotionally for the world of work. Circulation period 1 week, suggested for junior high and secondary students. Titles include: Do You Like Flowers? Do You Like Sports? How About Being a Key Punch Operator? Do You Love Animals? Would You Like to Be a Cashier? How About Office Work? How About Being an Electronics Assembler? Would You Like Hospital Work? Want to Work in a Laundry? Would You Like to Sell?
FS JRSR CE2	World of Work by Counselor Films, Inc. This divides the work world into ten major categories and shows selected occupations in each category. Circulation period 1 week, suggested for junior high and secondary levels.

JRSR CASSETTES

Call Number	Name
CT JRSR CE1	"Carbon Duplication," Mt. San Jacinto College. Skilled training in making typewritten carbon copies and other office reproduction. Circulation period 2 weeks, suggested for 11 and 12.

JRSR POSTERS

Call No.	Poster
PA ELEM JRSR CE1	Career Education Model K-Adult, Education Properties, Inc. In chart form. Lists of the elements and goals of career education, and the means of achieving these goals by grade level. Circulation period 2 weeks, suggested for teachers, counselors and administrators.
	Career Posters, Minnesota Department of Education. Posters showing careers in various areas related to subjects shown below and further divided according to amount of education necessary for each. (laminated to add more careers in spaces provided) Circulation period 4 weeks suggested for 6-12.
PA JRSR CE2	Industrial Education Careers
PA JRSR CE3	English Careers
PA JRSR CE4	Social Studies Careers
PA JRSR CE5	Agricultural Science Careers
PA JRSR CE6	Science Careers
PA JRSR CE7	Business Careers
PA JRSR CE8	Mathematics Careers
PA JRSR CE9	Distributive and Marketing Careers
PA JRSR CE10	Music Careers

Call No.	Poster
PA JRSR CE11	Art Careers
PA JRSR CE12	Home Economics Careers
PA JRSR CE13	Physical Education and Health Careers
PA JRSR CE14	Foreign Language Careers
PA JRSR CE15	Guidance Publications Chronicle Posters. Nine different posters representing various types of work. Circulation period 4 weeks, suggested for junior high and secondary students.
PA JRSR CE16	A Career for You by South-Western Publishing Co. Shows fifteen job clusters which represent groups of occupations. Circulation period 4 weeks, suggested for junior high and secondary level.
PA JRSR CE17	Career Education is Discovery, by Judy Rae Kuhlman. A bulletin board set-up with pictures representing the many occupations available today. Circulation period 4 weeks, suggested for junior high and secondary level.

Call No.	Poster
	The Job-Finding Posters, by Education Systems and Publications. Circulation period 4 wks., suggested for grades 9-12.
PA JRSR CE18	How to Locate the Jobs
PA JRSR CE19	How to Sell Yourself in a Job Interview
PA JRSR CE20	The Job Finding Process
PA JRSR CE21	How to Fill in the Application Blank
PA JRSR CE22	The Job Finding Letter
PA JRSR CE23	The Job Finding Resume
PA JRSR CE24	Lifestyles 2000. A brief look at what life may be like in the year 2000. Circulation period 4 wks., suggested for grades 9-12.
PA JRSR CE25	Occupational Clusters. A set of 14" x 11" cards giving a broad overview of career clusters and related areas. Suggested for junior high and secondary level. Circulation period 4 wks.
PA JRSR CE26	I Want You (to Have a Good Career) by Vocational Biographies, Inc. Depicts the benefits at stake and the requirements for finding the right career. Circulation period 3 wks., suggested for grades 9-12.
	Related posters dealing with lifetime income, educational level, and job selection by Garrett Park Press. Circulation period 2 wks., suggested for grades 9-12.
PA JRSR CE27	Lifetime Income and Educational Level for Men
PA JRSR CE28	Educational Requirements for Selected Occupations
PA JRSR CE29	Earnings by Occupation: Nonprofit Organizations

Call No.	Poster
PA JRSR CE30	Job Search Pyramid: 15 Steps to Career Development
PA JRSR CE31	Earnings By Occupation: Profit Making Industries
	Career Clusters Posters, by Houghton Mifflin Company. 15 posters depicting various careers. Circulation period 4 wks., suggested for the secondary level.
PA JRSR CE32	Elect a Career in Public Services
PA JRSR CE33	Be Resourceful-Try a Career in Environment
PA JRSR CE34	Tailor a Career in Personnel Services
PA JRSR CE35	Make Your Career in Manufacturing
PA JRSR CE36	Reap the Rewards of a Career in Agribusiness and Natural Resources
PA JRSR CE37	Are You the Business and Office Type?
PA JRSR CE38	How Do You Feel About Health Careers?
PA JRSR CE39	Cook Up a Career in Consumer and Homemaking Education
PA JRSR CE40	Create Your Career in Fine Arts and Humanities
PA JRSR CE41	Shop Around in Marketing and Distribution Careers
PA JRSR CE42	"Sea" About a Marine Science Career

Call No.	Poster
PA JRSR CE43	Get Your Message Across With a Career in Communications and Media
PA JRSR CE44	Build a Future With a Construction Career
PA JRSR CE45	Go Places With a Transportation Career
PA JRSR CE46	Welcome to a Career in Hospitality and Recreation
PA JRSR CE47	Infusion: A Career Education Strategy, by Highline Public Schools. Defines Career Education in terms of what it hopes to accomplish. Circulation period 4 wks., suggested for junior high and secondary level.

LIST OF MICROFICHE ON FILE

ED 010 703 STUDIES IN SUCCESS, A PROMISING APPROACH TO THE VOCATIONAL GUIDANCE OF AVERAGE HIGH SCHOOL STUDENTS.

ED 011 282 HIGH SCHOOL PRINCIPALS' PERCEPTIONS OF ASSISTANCE NEEDED IN ORDER TO DEVELOP MORE ADEQUATE PROGRAMS FOR EMPLOYMENT-BOUND YOUTH.

ED 011 044 GUIDELINES FOR COOPERATIVE EDUCATION AND SELECTED MATERIALS FROM THE NATIONAL SEMINAR HELD AUGUST 1-5, 1966. A MANUAL FOR THE FURTHER DEVELOPMENT OF COOPERATIVE EDUCATION.

ED 011 300 PRIORITY PROBLEMS IN VOCATIONAL EDUCATION FOR THE NATION'S BIG CITIES, RESEARCH TRAINING INSTITUTE.

ED 011 545 HIGH SCHOOL PRINCIPALS' PERCEPTIONS OF THE ROLES AND RESPONSIBILITIES OF PERSONS...ETC.

ED 011 913 A FOLLOW-UP STUDY OF THE ATTITUDES OF LOCAL ADMINISTRATORS REGARDING THE FINANCING OF VOCATIONAL EDUCATION IN MICHIGAN.

ED 012 309 SUPERVISING OCCUPATIONAL EXPERIENCE PROGRAMS. A SPECIAL CONFERENCE REPORT.

ED 012 748 HANDBOOK FOR DIVERSIFIED COOPERATIVE TRAINING. DISTRIBUTIVE, COOPERATIVE, AND BUSINESS EDUCATION BY LOWMAN.

ED 014 114 GROUP RESPONSIBILITY, AFFILIATION, AND ETHICAL RISK TAKING.

ED 015 517 VOCATIONAL PROBLEM-SOLVING EXPERIENCES FOR STIMULATING CAREER EXPLORATION AND INTEREST.

ED 016 053 HANDBOOK FOR DEVELOPING AND OPERATING AGRICULTURAL OCCUPATIONS PROGRAMS.

ED 016 248 BEYOND HIGH SCHOOL. A STUDY OF 10,000 HIGH SCHOOL GRADUATES.

ED 016 268 CAREER SIMULATION FOR ADOLESCENT PUPILS. FINAL REPORT.

ED 024 809 A VOLUNTEER PROGRAM IN VOCATIONAL INFORMATION AND CAREER GUIDANCE FOR SECONDARY SCHOOLS. A HANDBOOK.

ED 024 965 TEACHER'S GUIDE TO SELF UNDERSTANDING THROUGH OCCUPATIONAL EXPLORATION (SUTOE).

ED 025 602 CHARACTERISTICS OF NON-COLLEGE VOCATIONALLY-ORIENTED SCHOOL LEAVERS AND GRADUATES.

ED 026 527 A PILOT PROJECT FOR VOCATIONAL GUIDANCE IN ECONOMICALLY UNDERDEVELOPED AREAS.

ED 027 414 VOCATIONAL PROGRAMS IN THE PUBLIC SCHOOLS. THE ROLE OF THE TEACHER. FINAL REPORT.

ED 027 431 ATTITUDE CHANGES OF VOCATIONAL EDUCATORS AFTER ATTENDING A THREE-WEEK WORKSHOP IN VOCATIONAL-TECHNICAL EDUC.

ED 027 435 DEVELOPING A PROGRAM OF STUDENT PERSONNEL SERVICES FOR AREA VOCATIONAL-TECHNICAL SCHOOLS, ETC.

ED029 155 RESEARCH VISIBILITY. EVALUATION AND ACCREDITATION.

ED 029 343 ORIENTING STUDENTS TO THE WORLD OF WORK USING THE DATA-PEOPLE-THINGS CONCEPTUAL FRAMEWORK AND THE OHIO VOCATIONAL INTEREST SURVEY.

ED 029 994 ATTITUDES TOWARD VOCATIONAL EDUCATION IN THE SECONDARY SCHOOLS OF WEST VA. PART I, SCHOOL ADMINISTRATORS AND BRDS. OF EDUC. MEMBERS.

ED 029 998 GENERALIZATIONS RELATED TO CONCEPTS IMPORTANT FOR YOUTH ORIENTATION TO THE WORLD OF WORK.

ED 031 220 WORK EXPERIENCE EDUCATION PROGRAMS--INNOVATIONS IN THE JUNIOR COLLEGE CURRICULA.

ED 032 582 BETWEEN EDUCATION AND THE WORLD OF WORK. THE IMAGE OF THE WORLD OF WORK, OCCUPATIONAL EDUC. PROGRAM.

ED 033 254 INTENSIVE HIGH SCHOOL OCCUPATIONAL GUIDANCE APPROACHES FOR INITIAL WORK AND TECHNICAL SCHOOL PLACEMENT.

ED 033 255 ORIENTATION APPROACHES TO INCREASE STUDENT AWARENESS OF OCCUPATIONAL OPTIONS.

ED 033 660 POST-SECONDARY EDUCATIONAL PREFERENCES OF HIGH SCHOOL SENIORS. A SURVEY OF SPRING 1968 WISCONSIN HIGH SCHOOL SENIORS.

ED 033 673 PLANS BEYOND HIGH SCHOOL. A REPORT OF A STATE-WIDE SURVEY OF FLORIDA HIGH SCHOOL SENIORS.

ED 034 062 WORK EXPERIENCE FOR BROADENING OCCUPATIONAL OFFERINGS. A SELECTED BIBLIOGRAPHY FOR USE IN PROGRAM DEV. INFORMATION SERIES-ANALYSIS PAPER NO. 2.

ED 035 053 A STUDY OF EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS OF VIRGINIA'S 1966-67 HIGH SCHOOL SENIORS.

ED 036 651 A ONE-WEEK INST. TO DEVELOP OBJECTIVES AND MODELS FOR A CONTINUOUS EXPLORATORY PROGRAM RELATED TO THE WORLD OF WORK FROM JR. HIGH THROUGH SR. HIGH SCHOOL.

ED 037 297 ATTITUDES AND PLANS OF HIGH SCHOOL STUDENTS IN SEDGWICK COUNTY, CO.

ED 037 536 QUESTIONNAIRE FOLLOW-UP RETURNS AS A FUNCION OF INCENTIVES AND RESPONDER CHARACTERISTICS.

ED 037 542 REVIEW AND SYNTHESIS OF RESEARCH ON THE ADMINISTRATION OF VOCATIONAL AND TECHNICAL EDUCATION.

ED 037 543 REVIEW AND SYNTHESIS OF RESEARCH ON THE PLACEMENT AND FOLLOW-UP OF VOCATIONAL ED. STUDENTS.

ED 038 499 OCCUPATIONAL CHOICE OF HIGH SCHOOL SENIORS IN THE SPACE AGE.

ED 038 666 OCCUPATIONAL INFORMATION AS AN INTEGRAL STRAND IN THE PLAN SOCIAL STUDIES CURRICULUM.

ED 039 322 COOPERATIVE DISTRIBUTIVE AND OFFICE ED. PROGRAMS.

ED 041 120 A MANUAL FOR GUIDANCE PERSONNEL IN AREA OCCUPATIONAL CENTERS AND IN ALL OCCUPATIONAL EDUCATION SETTINGS.

ED 041 143 NATIONAL CONFERENCE ON GUIDANCE, COUNSELING, AND PLACEMENT IN CAREER DEVELOPMENT AND EDUCATIONAL-OCCUPATIONAL DECISION MAKING.

ED 042 002 A GUIDE TO WORK EXPERIENCE EDUCATION AND EMPLOYMENT PLACEMENT, A PROGRAM FOR SENIOR HIGH SCHOOLS.

ED 042 010 CAREER DEVELOPMENT WORKSHOP.

ED 042 055 GOING TO WORK. AN ANALYSIS OF THE DETERMINANTS AND CONSEQUENCES OF ENTRY INTO LABOR FORCE.

ED 042 196 COOPERATIVE EDUCATION PROGRAM.

ED 042 217 FACILITATING CAREER DEVELOPMENT. AN ANNOTATED BIBLIOGRAPHY. FINAL REPORT.

ED 043 754 BUSINESS EDUCATION FOR THE EMERGENT OFFICE.

ED 044 076 PLANS BEYOND HIGH SCHOOL. A REPORT OF A SURVEY OF STATEWIDE FLORIDA HIGH SCHOOL SENIORS.

ED 047 084 BIBLIOGRAPHY OF BUSINESS AND OFFICE EDUCATION DOCUMENTS IN ABSTRACTS OF INSTRUCTIONAL MATERIALS IN VOCATIONAL AND TECHNICAL EDUCATION.

ED 047 099 TEACHING BELIEFS AND CLASSROOM METHODOLOGY OF SELECTED PROJECT AND COOPERATIVE PLAN DISTRIBUTIVE EDUCATION TEACHER COORDINATORS.

ED 048 491 RESOURCE MANUAL 71 FOR THE DEVELOPMENT OF COOPERATIVE VOCATIONAL EDUCATION PROGRAMS UNDER THE VOCATIONAL EDUCATION AMENDMENTS OF 1968.

ED 048 508 COOPERATIVE OCCUPATIONAL EDUCATION PROGRAMS--A CONFERENCE SEMINAR TO EXTEND THE RANGE OF VOCATIONAL EDUCATION.

ED 048 664 ERIC ABSTRACTS: A COLLECTION OF ERIC DOCUMENT RESUMES ON DEVELOPING VOCATIONAL EDUCATION PROGRAMS IN THE PUBLIC SCHOOLS.

ED 050 279 OCCUPATIONAL ORIENTATION: AN INTRODUCTION TO THE WORLD OF WORK. TEACHERS HANDBOOK. PRELIMINARY DRAFT.

ED 050 285 ATTITUDES TOWARD VOCATIONAL EDUCATION IN THE SECONDARY SCHOOLS OF WEST VIRGINIA. PART II: EMPLOYERS AND LABOR LEADERS.

ED 053 313 PAPERS PRESENTED AT THE WORKSHOP ON THE DEVELOPMENT OF GUIDELINES FOR PLANNING CAREER DEVELOPMENT PROGRAMS K-12 IN OHIO.

ED 054 337 A GUIDE TO CHILD LABOR PROVISIONS OF THE FAIR LABOR STANDARDS ACT. WAGE AND HOUR AND PUBLIC CONTRACTS DIVISIONS (DOL).

ED 055 168 HANDBOOK FOR COORDINATORS OF INDUSTRIAL COOPERATIVE TRAINING IN VIRGINIA'S PUBLIC SCHOOLS.

ED 055 215 OCCUTAPES.

ED 056 227 GUIDELINES TO INITIATE AND OPERATE A COOPERATIVE VOCATIONAL EDUCATION PROGRAM.

ED 056 938 AN ANALYSIS OF THE CAREER ORIENTATION PROJECT IN SOCIAL STUDIES.

ED 057 180 WHAT SCHOOL ADMINISTRATORS SHOULD KNOW ABOUT COOPERATIVE VOCATIONAL EDUCATION.

ED 057 234 EXPLORING OCCUPATIONS. GUIDELINES FOR IMPLEMENTATION OF PROGRAMS OF OCCUPATIONAL EXPLORATION AND AWARENESS IN DELAWARE SCHOOLS UNDER HB 509.

ED 057 235 OCCUPATIONAL ORIENTATION: AN INTRODUCTION TO THE WORLD OF WORK.

ED 057 966 ORIENTATION TO NEW CONCEPTS AND PROGRAMS OF CAREER ORIENTATION AND OCCUPATIONAL EDUCATION FOR STUDENTS IN RURAL AREAS. FINAL REPORT. INSTITUTE VI.

ED 058 418 PROJECT VIGOR; VOCATIONAL CLUSTER EDUCATION, INTEGRATED AND ARTICULATED GRADES 1 THROUGH 14 WITH GUIDANCE SERVICES.

ED 059 387 IMPROVING RURAL AREA SCHOOL PROG-EXPND VOCAT ED SERVS BY UTILIZING COMPREHENSIVE CAREER ORIENTATION & EXEMPLARY ACTIVITIES. INTERIM REPORT

ED 059 388 IMPROVING RURAL AREA SCHOOL PROG-EXPND VOCAT ED SERVS BY UTILIZING COMPREHENSIVE CAREER ORIENTATION & EXEMPLARY ACTIVITIES. INTERIM REPORT. VOL I BIBLIO FOR VOCAT ED.

ED059 389 IMPROVING RURAL AREA SCHOOL PROG-EXPND VOCAT ED SERVS BY UTILIZING COMPRHNSVE ORIENTATION & EXEMPLARY ACTIVITIES. INTM REPRT, VOL II BIBLIO CAREER ED MATERIALS.

ED 059 390 IMPROVING RURAL AREA SCHOOL PROG-EXPND VOCAT ED SERVS BY UTILIZING COMPRHNSVE CAREER ORIENTATION & EXEMPLARY ACTIVITIES. INTM REPRT, VOL III BIBLIO CAREER ED MATERIALS.

ED 059 390 IMPROVING RURAL AREA SCHOOL PROG-EXPND VOCAT ED SERVS BY UTILIZING COMPRHNSVE CAREER ORIENTATION & EXEMPLARY ACTIVITIES. INTM REPRT, VOL III FOR LEVELS 1-8.

ED 059 391 IMPROVING RURAL SCHOOL PROG-EXPND VOCAT SERVS BY UTILIZING COMPRHNSIVE CAREER ORIENTATION & EXEMPLARY ACTIVITIES. INTM REPRT, VOL IV. BIBLIO IN CAREER ED.

ED 059 400 CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION (ORGANIZATIONAL PHASE). FINAL REPORT.

ED 059 401 A COMPARISON OF TWO METHODS OF TEACHING LIFE CAREER PLANNING TO JUNIOR HIGH SCHOOL STUDENTS. FINAL REPORT.

ED 059 404 STRATEGIES FOR TEACHING ENGLISH IN CAREER EDUCATION. FINAL REPORT.

ED 060 187 THE NEXT STEP--A COMPREHENSIVE PROGRAM IN OCCUPATIONAL PREPARATION AND PLACEMENT. INTERIM REPORT.

ED 060 198 A CURRICULUM MODEL FOR FACILITATING CAREER DEVELOPMENT.

ED 060 211 JOB PLACEMENT COORDINATOR'S HANDBOOK.

ED 060 482 PRELIMINARY REPORT: ASSESSMENT OF THE FIRST YEAR OF USE OF THE EDUCATIONAL AND CAREER EXPLORATION SYSTEM IN SECONDARY SCHOOLS OF BENESEE COUNTY, MICHIGAN.

ED 061 562 A TENTATIVE CAREER DEVELOPMENT CURRICULUM AND ITS IMPLICATIONS FOR THE PATTERNING OF SUPERVISORY RESPONSIBILITIES IN INFORMAT SYS FOR VOCAT DECISIONS.

ED 062 498 SOME VARIABLES WHY SO FEW HIGH SCHOOL GRADUATES ATTEND POST-HIGH SCHOOL AREA VOCATIONAL SCHOOLS.

ED 062 649 PROSPECTS FOR TECHNOLOGY AND COMMERCE IN THE MEDIATION OF VOCATIONAL DEVELOPMENT FOR VOCATIONAL MATURITY.

ED 062 650 SUGGESTIONS FOR TREATMENT OF INFORMATION ABOUT OCCUPATIONS.

ED 063 458 PILOT OCCUPATIONAL EDUCATION PROGRAMS FOR SMALL RURAL AND SUBURBAN ARKANSAS SCHOOLS IN GRADES FIVE THROUGH TWELVE. INTERIM REPORT.

ED 063 503 COOPERATIVE VOCATIONAL EDUCATION COORDINATOR'S HANDBOOK. VOLUME II, OPERATION AND ADMINISTRATION.

ED 063 504 COOPERATIVE VOCATIONAL EDUCATION COORDINATOR'S HANDBOOK. VOLUME I.

ED 064 371 THE DEVELOPMENT AND EVALUATION OF A TEST TO MEASURE OCCUPATIONAL AWARENESS.

ED 064 501 HANDS ON. A COMPREHENSIVE PROGRAM OF CAREER ORIENTATION FOR HIGH SCHOOL STUDENTS.

ED 064 664 THE HIGH SCHOOL DIPLOMA: CREDENTIAL FOR EMPLOYMENT? FINAL REPORT.

ED 065 687 JUNIOR HIGH CAREER GUIDANCE CURRICULUM--STUDENT-CENTERED OCCUPATIONAL PREPARATION AND EXPLORATION (SCOPE). STUDENT WORKBOOK.

ED 068 728 DEVELOPMENT OF TASK PERFORMANCE STATEMENTS FOR A NEW OFFICE AND BUSINESS EDUCATION LEARNINGS SYSTEM (NOBELS). FINAL REPORT.

ED 068 729 LABOR MOBILITY: AN EVALUATION OF PILOT PROJECTS IN MICHIGAN AND WISCONSIN.

ED 069 932 CAREER EDUCATION: A MATURING CONCEPT, SECOND INTERIM REPORT OF THE K-12 PROJECT IN CAREER DEVELOPMENT AND BRIDGING THE GAP BETWEEN SCHOOL AND WORK.

ED 070 844 A CURRICULUM DESIGNED FOR A CAREER EXPLORATION PROGRAM IN THE DISTRIBUTIVE OCCUPATIONS FOR THE TENTH GRADE SECONDARY STUDENT. FINAL REPORT.

ED 072 227 COMPREHENSIVE CAREER EDUCATION MODELS: PROBLEMS AND PROSPECTS.

ED 072 272 WRITTEN STATEMENTS OF OPERATIONAL DEFINITIONS.

ED 105 513 REGIONAL CENTER FOR COLLECTION, SYNTHESIS AND DISSEMINATION OF CAREER INFORMATION FOR USE BY SCHOOLS OF SAN DIEGO COUNTY (DEVELOPMENTAL).

ED 120 070 WORKER ADJUSTMENT--YOUTH IN TRANSITION FROM SCHOOL TO WORK, AN ANNOTATED BIBLIOGRAPHY OF RECENT LITERATURE. BIB. 2

ED 058 418 PROJECT VIGOR: VOCATIONAL CLUSTER EDUCATION, INTEGRATED AND ARTICULATED GRADES 1 THROUGH 14 WITH GUIDANCE SERVICES.

ED 059 390 IMPROVING RURAL AREA SCHOOL PROG-VOCAT ED SERVS BY UTILIZING COMPREHENSIVE CAREER ORIENTATION & EXEMPLARY ACTIVITIES. INTM REPORT. VOL III FOR LEVELS 1-8.

ED 060 189 ABSTRACTS OF EXEMPLARY PROJECTS IN VOCATIONAL EDUCATION.

ED 060 198 A CURRICULUM MODEL FOR FACILITATING CAREER DEVELOPMENT.

ED 073 287 BIBLIOGRAPHY OF K-6 CAREER EDUCATION MATERIALS FOR THE ENRICHMENT OF TEACHER AND COUNSELOR COMPETENCIES (ETC. PROJECT).

ED 073 297 CAREER EDUCATION: AN ANNOTATED, BIBLIOGRAPHY FOR TEACHERS AND CURRICULUM DEVELOPERS.

ED 073 320 CAREER DEVELOPMENT IN THE ELEMENTARY SCHOOL: A PRACTICAL SCHEME.

ED 090 442 A NATIONAL ANNOTATED BIBLIOGRAPHY OF CURRICULUM MATERIALS IN VOCATIONAL AND CAREER EDUCATION.

ED 084 377 DEVELOPMENT OF A PILOT CAREER CLUSTER CURRICULUM FOR ALL STUDENTS IN A COLLEGE PREPARATORY ORIENTED HIGH SCHOOL. FINAL REPORT.

ED 084 383 WOMEN: PERSONAL AND ENVIROMENTAL FACTORS IN ROLE IDENTIFICATION AND CAREER CHOICES.

ED 084 409 UNIFYING A CAREER DEVELOPMENT THEME IN THE CURRICULUM THROUGH TEACHER IN-SERVICE ACTIVITIES. FINAL REPORT. MODELS FOR CAREER EDUCATION IN IOWA. FINAL REPORT: FINAL REPORT ADDENDUM.

ED 084 413 ANNOTATED BIBLIOGRAPHY ON CAREER EDUCATION FOR SECONDARY EDUCATORS.

ED 084 461 TRANSITION FROM SCHOOL TO WORK: THE ROLE OF CAREER EDUCATION.

ED 084 474 CURRICULUM MODEL FOR PREVENTING DROPOUTS, GRADES 9-12.

ED 084 479 IN-SCHOOL YOUTH MANPOWER: A GUIDE TO LOCAL STRATEGIES AND METHODS. FINAL REPORT.

ED 084 620 WANTED--MORE WOMEN: WHERE ARE THE WOMEN SUPERINTENDENTS?

ED 084 754 PREPARING FOR WORK.

ED 084 815 COMMUNICATIONS THROUGH MEDIA: A CAREER PROGRAM FOR HIGH SCHOOL STUDENTS.

ED 084 912 SECONDARY SCHOOL CURRICULUM GUIDE: FOREIGN LANGUAGE, GRADES 7-12, LEVELS 1-13.

ED 085 055 THE EXPLORATORY YEAR: A DESCRIPTION & AN EVALUATION.

ED 085 261 RELEVANT MATHEMATICS.

ED 085 280 MADISON PUBLIC SCHOOLS, SOCIAL STUDIES GUIDE.

ED 085 292 GUIDELINES FOR USING A SOCIAL SIMULATION/ GAME.

ED 085 331 RING UP YOUR CITY: CHARLOTTE. A YELLOW PAGES FOR TEACHERS.

ED 084 548 CURRICULUM GUIDE: CAREER EXPLORATION IN ART RELATED AREAS.

ED 085 858 NOTES ON DISTORTIONS IN THE MARKET FOR EDUCATIONAL SERVICES.

ED 016 852 A PROPOSED MODEL FOR AN INFORMATION STORAGE AND RETRIEVAL SYSTEM FOR REPORTING JOB PLACEMENT FOLLOW-THROUGH DATA OF PERSONS TRAINED IN INDUSTRIAL EDUCATION PROGRAMS IN CALIFORNIA PUBLIC SCHOOLS. TENTATIVE DRAFT.

ED 017 005 A MULTIMEDIA APPROACH TO COMMUNICATING OCCUPATIONAL INFORMATION TO NON-COLLEGE YOUTH. INTERIM TECHNICAL REPORT.

ED 017 727 WORKSHOP ON ORGANIZATION AND OPERATION OF COOPERATIVE WORK EXPERIENCE PROGRAMS IN TRADE AND INDUSTRIAL EDUCATION, ETC.

ED 017 733 OCCUPATIONAL EDUCATION--PLANNING AND PROGRAMMING VOLUME ONE.

ED 018 540 A GUIDE FOR PART-TIME COOPERATIVE EDUCATION PROGRAMS.

ED 020 431 VOCATIONAL-TECHNICAL TEACHER EDUCATION--NATIONAL SEMINAR PROCEEDINGS (SEPTEMBER 24-29, 1967).

ED 021 258 PROJECT VISION: AN APPROACH TO A MODEL SYSTEM OF OCCUPATIONAL EMPLOYMENT INFORMATION.

ED 021 300 THE CAREER INFORMATION SERVICE. A GUIDE TO ITS DEVELOPMENT AND USE.

ED 021 541 POLICY AND PROCEDURE FOR A VOCATIONAL EDUCATION WORK-STUDY PROGRAM FOR SEVERELY MENTALLY RETARDED PUPILS.

ED 022 960 DEVELOPMENT OF A PROCEDURE FOR A VOCATIONAL EDUCATION WORK-STUDY PROGRAM FOR SEVERELY MENTALLY RETARDED PUPILS.

ED 022 962 THE DEVELOPMENT AND DEMONSTRATION OF A COORDINATED AND INTEGRATED PROGRAM OF OCCUPATIONAL INFORMATION, SELECTION, AND PREPARATION IN A SECONDARY SCHOOL. FINAL REPORT. APPENDIX A.

ED 023 849 A NATIONAL SCHOOL COUNSELOR EVALUATION OF OCCUPATIONAL INFORMATION. VOCATIONAL TECHNICAL REPORT.

ED 023 927 A GUIDE FOR PLANNING FACILITIES FOR OCCUPATIONAL PREPARATION PROGRAMS IN DATA PROCESSING. INTERIM REPORT.

ED 024 080 PERCEPTIONS OF NON-COLLEGE-BOUND VOCATIONALLY ORIENTED HIGH SCHOOL GRADUATES.

ED 086 799 CAREER EDUCATION: COMMUNICATING THE CONCEPT.

ED 086 805 REPORT: BASIC FACTS ABOUT MILITARY SERVICE.

ED 086 863 KEEP CAREERS IN MIND: MIDDLE SCHOOL CAREER EDUCATION.

ED 086 873 SURVEY OF ENTRY-LEVEL BOOKKEEPING ACTIVITIES. IN RELATION TO THE HIGH SCHOOL BOOKKEEPING CURRICULUM.

ED 086 888 CAREER EDUCATION. IN-SERVICE TEACHER EDUCATION. INFORMATION SERIES NUMBER 92.

ED 086 905 MARYLAND CAREER DEVELOPMENT PROJECT (K-ADULT). CAREER EXPLORATION MODEL. GRADE 7-9.

ED 086 925 EDUCATING CHILDREN FOR ADULTHOOD: A CONCEPT OF PSYCHOSOCIAL MATURITY.

ED 086 927 RAINY DAYS AND MONDAYS: AN ANALYSIS OF FACTORS RELATED TO ABSENCE FROM SCHOOL.

ED 087 148 SECTION FOR EXCEPTIONAL CHILDREN CURRICULUM GUIDE FOR TRAINABLE MENTALLY RETARDED CHILDREN 1973-74.

ED 087 166 A GUIDE FOR TEACHERS OF THE EDUCABLE MENTALLY HANDICAPPED SECONDARY.

ED 087 433 THE DEVELOPMENT AND IMPLEMENTATION OF AN INTEGRATED CAREER EDUCATION AND PLACEMENT PROGRAM FOR THE WASHINGTON STATE SYSTEM OF COMMUNITY COLLEGES.

ED 087 473 FINAL REPORT OF THE TASK FORCE ON INSTRUCTIONAL MEDIA.

ED 033 673 PLANS BEYOND HIGH SCHOOL. A REPORT OF A STATE-WIDE SURVEY OF FLORIDA HIGH SCHOOL SENIORS.

ED 034 062 WORK EXPERIENCE FOR BROADENING OCCUPATIONAL OFFERINGS. A SELECTED BIBIOGRAPHY FOR USE IN PROGRAM DEV. INFORMATION SERIES-ANALYSIS PAPER NO. 2.

CE 005 621

ACCESSION NUMBER: VT103469

PUBLICATION DATE: 75

TITLE: ENVIRONMENT. JUNIOR HIGH CAREER EDUCATION HANDBOOK.

DESCRIPTOR: *CAREER EDUCATION; *JUNIOR HIGH SCHOOLS; SECONDARY EDUCATION; *LEARNING ACTIVITIES; *CONSERVATION (ENVIRONMENT); *SCIENCE EDUCATION; *CURRICULUM GUIDES; BEHAVIORAL OBJECTIVES

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 200P.; RELATED DOCUMENTS VT 103 467 AND VT 103 470 AND VT 103 471 AND VT 103 552 AND VT 103 575 IN THIS ISSUE.

ABSTRACT: DEVELOPED BY A COMPREHENSIVE CAREER EDUCATION PROJECT IN THE DES MOINES INDEPENDENT SCHOOL DISTRICT, THIS HANDBOOK FOR THE JUNIOR HIGH LEVEL PROVIDES ACTIVITIES FOR THE STUDY OF CAREERS IN THE ENVIRONMENT CLUSTER. THIS COLLECTION OF CAREER-RELATED IDEAS IS INTENDED AS AN OPEN-ENDED TOOL TO BE USED WITH INDIVIDUAL STUDENTS, A SMALL GROUP, OR AN ENTIRE CLASS. THE IDEAS MAY BE EITHER IMPLEMENTED AS A UNIT OR INCORPORATED INTO THE LIFE SCIENCE CURRICULUM. BEHAVIORAL OBJECTIVES, LISTED FOR EACH OF SEVEN MAJOR AREAS OF ENVIRONMENTAL STUDY, INCLUDE RESOURCE ACTIVITY CODE NUMBERS WHICH REFER TO LEARNING ACTIVITIES IN THE HANDBOOK. THE CODE NUMBER DESIGNATES THE TYPE OF ACTIVITY--STUDENT CLASSROOM, CLASSROOM SPEAKER, FIELD TRIPS, OR SAMPLE LESSON PLANS. IN ADDITION, A SEPARATE UNIT ON HORTICULTURE CONSISTING OF A VARIETY OF ACTIVITIES IS INCLUDED. THE HANDBOOK CONTAINS NUMEROUS STUDENT ACTIVITY SHEETS AND TRANSPARENCY MASTERS IN ADDITION TO THE SAMPLE LESSON PLANS AND OTHER LEARNING ACTIVITIES. (NJ)

INSTITUTION NAME: DES MOINES PUBLIC SCHOOLS, IOWA.

SPONSORING AGENCY NAME: BUREAU OF OCCUPATIONAL AND ADULT EDUCATION (DHEW/OE), WASHINGTON, D.C.

VT103 469

OCT 22 1976

JUNIOR HIGH CAREER EDUCATION HANDBOOK FOR

ENVIRONMENT

RECEIVED
OFFICE OF
MIGRANT EDUCATIONAL
AND ADULT EDUCATION
REGION VII

JUN 10 1976

EDITION • 1973
ND EDITION • 1975

VT 103 469

2

ENVIRONMENT

BOARD OF EDUCATION

Dr. George G. Caudill, President

Mr. Nolden I. Gentry
Mrs. Betty Grundberg
Dr. John E. McCaw
Dr. Ora E. Niffenegger
Mr. Merle F. Schlampp
Mrs. Jack Spevak

SUPERINTENDENT OF SCHOOLS

Dr. Dwight M. Davis

ASSISTANT SUPERINTENDENT FOR EDUCATION

Dr. Robert R. Denny

EXECUTIVE DIRECTOR, SECONDARY EDUCATION

Dr. D. M. Wetter

SUPERVISOR OF SCIENCE

Mr. Harold Rathert

OE 009 612

TABLE OF CONTENTS

PREFACE i

INTRODUCTION 1

SAMPLE LESSON PLAN INCLUDING

Goal I: To explore operational organization and procedures . 3

Goal II: To explore careers related to soil and mineral conservation and control 10

Goal III: To explore careers related to space and atmospheric monitoring and control 11

Goal IV: To explore careers related to environmental health services 12

Goal V: To explore careers related to development and control of physical man-made environment 13

Goal VI: To explore careers related to forest, range, shore and wildlife conservation and control 14

Goal VII: To explore careers related to water resource development, conservation and control 15

STUDENT CLASSROOM ACTIVITIES 16

Goal VIII: To explore horitculture as it relates to: (a) specific career opportunities and (b) areas of personal value 34a

APPENDIX

Classroom Speakers and Field Trips 35

Lesson Plans, Printed Matter, Films 114

Summary 136

Additional Teaching Materials (Overlays, Transparencies) 137

PREFACE

Career Education is a continuing goal of the Des Moines Public Schools that will assist in making education more meaningful for our junior high students by helping them acquire the knowledge, attitudes and skills necessary for making wiser career choices and understanding their roles in society.

This handbook was developed and revised to provide instructors with additional insight into the implementation of activities in the career cluster of Environment. This Handbook merely suggests objectives, activities and resources that can be incorporated into the classroom. Instructors need to adapt the material to their specific classroom and student needs.

There is a wealth of materials and resources available in the community that instructors should become aware of and utilize to assist them in implementing Environment activities.

We would like to thank the following instructors and business people for their contributions in the development and revision of the Environment Handbook.

Instructors

1973		
Charles Spain	Science	Callanan Jr. High
John Snider	Science	Franklin Jr. High
Joan Overton	Science	Hoyt Middle School
Ray Langland	Science	Merrill Jr. High
Bill Hughes	Science	Brody Jr. High
John Hines	Science	Harding Jr. High
Harold Rathert	Supervisor of Science	
1975		
Charles Spain	Science	Callanan Jr. High
Granville Williams	Science	Kurtz Jr. High
Mark Phillips	Science	Harding Jr. High
Harold Rathert	Supervisor of Science	

Business and Industrial Participants

1973	
William Mills	Soil Conservation Service
Lloyd Huff	Iowa Conservation Commission
Duane Toomsen	Department of Public Instruction
Don Wetter	
Bill Wyer	Environmental Sanitation

It is intended that these materials be utilized by the junior highs as they continue to implement career education. Through in-service and additional workshops, these materials will be revised and updated.

D. M. Wetter
Executive Director
Secondary Education

5

Environment

INTRODUCTION

Careers Related to Our Environment

Man, in making an attempt to control his environment, has persistantly endangered his own species. An awareness must be made to the students of the urgent need to pursue careers in fields relevant to the continuance of our species.

This collection of career-related ideas is intended to be an open ended tool which a teacher might use with one student, a small group, or an entire class. They may be implemented as a unit or incorporated into your regular curriculum. It is hoped, however, that individual teachers in each building will coordinate their activities so that they do not become repetitive as the students change grade levels. It is the recommendation of the committee that this material be incorporated into the existing 7th grade Life Science program.

The basis for organization was to use the seven major classifications of a career interest survey as the major goals. Under each major classification, sample behavioral objectives were selected. The major emphasis was identifying the various careers and correlating resources and activities. The resources are divided into 4 sections: (A) Student Classroom Activities, (B) Classroom Speakers, (C) Field Trips, and (D) Sample Lesson Plans, printed matter, and films.

FORMAT EXPLANATION

Goal: _____
(Statement)

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES
		Code System: Type of Activity A = Student Classroom B = Classroom Speaker C = Field Trips D = Lesson Plans, Printed Matter, Films Activity Specific activity listings start on page 16. All codes refer to the specific goal (I, II, III, IV, V, VI, VII) rather than to career areas. For example: A-1: Resource #1, A= student classroom activity related to Goal II and VI. A-B-C-D-79: Resource #79, A-B-C-D = provides all 4 types of activities.

INTRODUCTION

Careers Related to Our Environment

Man, in making an attempt to control his environment, has persistantly endangered his own species. An awareness must be made to the students of the urgent need to pursue careers in fields relevant to the continuance of our species.

This collection of career-related ideas is intended to be an open ended tool which a teacher might use with one student, a small group, or an entire class. They may be implemented as a unit or incorporated into your regular curriculum. It is hoped, however, that individual teachers in each building will coordinate their activities so that they do not become repetitive as the students change grade levels. It is the recommendation of the committee that this material be incorporated into the existing 7th grade Life Science program.

The basis for organization was to use the seven major classifications of a career interest survey as the major goals. Under each major classification, sample behavioral objectives were selected. The major emphasis was identifying the various careers and correlating resources and activities. The resources are divided into 4 sections: (A) Student Classroom Activities, (B) Classroom Speakers, (C) Field Trips, and (D) Sample Lesson Plans, printed matter, and films.

FORMAT EXPLANATION

Goal: _____
(Statement)

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES
		Code System: Type of Activity A = Student Classroom B = Classroom Speaker C = Field Trips D = Lesson Plans, Printed Matter, Films Activity Specific activity listings start on page 16. All codes refer to the specific goal (I, II, III, IV, V, VI, VII) rather than to career areas. For example: A-1: Resource #1, A= student classroom activity related to Goal II and VI. A-B-C-D-79: Resource #79, A-B-C-D = provides all 4 types of activities.

A Sample Lesson Plan for Goal I
School Lunchroom Waste Analysis

GOAL I: To explore operational organization and procedures.

Rationale: The primary purpose of this activity is to explore operational procedures using an investigative approach to an environmental problem. It is also designed to accomplish the following:

(1) provide an example of basic research and data research and data-gathering,

(2) provide an example of quantitative approach to an environmental problem,

(3) provide an insight into the division of labor by active involvement, and

(4) provide a format that could be used for other areas of this cluster.

Behavioral Objectives: As a result of participating in this activity, the student will be able to:

(1) identify the division of labor necessary to analyze school lunchroom waste.

(2) demonstrate a quantitative approach to data-gathering and problem-solving.

(3) recognize an environmental problem in which he plays an active role.

Implementation:

(1) Approval of the school administration and the lunchroom personnel is essential.

(2) It may be used as a class or small-group activity.

(3) Each food item in the school cafeteria is to be measured (by weight) as it pertains to:
   a. The amount served. (This data may be obtained from the school lunchroom personnel).
   b. The amount wasted.
      - separate collection receptacles will be needed for each item. (plastic dishpan, for example.)

- weigh each container and record the weight on the outside with a marker.
- the receptacles for collecting the wasted food should be placed in such a position as to allow students to move freely through the line.
- one or two students should be in attendance at each receptacle and see that only one food item is collected per container.
- plastic scrapers and aprons should be provided.

(4) A scale for weighing should be available.

(5) A practice run should be carried out before the actual project is attempted.

A. Management: Three students selected by the class or by the teachers. One student may act as chairman (research scientist) and the others may serve as "research assistants". Perhaps the management would like to select a secretary to assist.

1. Planning and Administration:
   - general design of the investigation
   - equipment needed
   - job layout
2. Communication:
   - contact administration
   - contact lunchroom personnel
   - provide information to the student body
3. Personnel and Labor Relations:
   - job description
   - personnel selection -- assignment of jobs
4. Data Interpretation:
   - how data is to be processed
   - tabulate daily reports
   - figure daily cost analysis
   - provide graphic presentation of data
   - summary and conclusions

B. Supervision and Mid-Management:

1. Operational techniques and procedures.
   - how will collecting and measuring materials be set up and arranged
   - provide a traffice flow chart for the student body
   - be sure that all personnel know just what they are supposed to do

2. Data collecting and handling.

   - supervise collection and weighing
   - record results on the daily report sheets

3. Task analysis.

   - analyze each job as the operation is in progress to determine if job efficiency could be improved

4. Personnel relationship.

   - keep the team working together efficiently
   - arbritate disputes
   - make each person feel important

5. Communication skills.

   - keep in close contact with the lunchroom personnel
   - keep the student body aware of the purpose of the project
   - elicit cooperation of the student body

C. Personnel

1. Personnel practices.

2. Communication skills.

3. Skill Development.

4. Career Orientation.

Date _____
Lunch period _____

Lunchroom Waste Analysis
Worksheet

Student Study Sheet
(one per student)

A	B	C	D	E	F	G
Food Item	Total Amt. Served lbs. oz.	Total Amt. Returned Incl. Container lbs. oz.	Weight of Container lbs. oz.	Total Amt. Wasted (C-D) lbs. oz.	% Wasted (E/B x 100)	Comments

14

Form No. 1

Date: _____

Student Study Sheet
(one per student)

Lunchroom Waste Analysis
Composite Tally Sheet

Food Item	Total Amt. Served lbs. oz.	Total Amt. Wasted lbs. oz.	% Wasted	Comments
TOTAL				

Form No. 2

Student Study Sheet
(one per student)

Lunchroom Waste Analysis
Cost Analysis

	A	B	C	D	E	F	G
Date	Total Amt. Served	Total Amt. Wasted	% Wasted	No. of Students Served	Total Cost	Total Cost of Wasted Food	Cost/Student of Food Wasted

Form No. 3

16

Suggested Follow-Up Activities:

(1) A variety of graphs can be made using the data tabulated on Forms 2 and 3.

(2) The class can be asked to summarize and make inferences with respect to the data on Forms 2 and 3.

(3) As a result of the information gained in this activity, what recommendations could be made that might reduce the amount of food wasted in the school lunchroom.

Goal II: To explore careers related to soil and mineral conservation and control.

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES		
The student will recognize different types of soils.	Farming	A1	C55	D85
	Agronomy	A2	C56	BD86
	Animal Husbandry	A3	C57	BC91
	Civil Engineering	A4	BC58	C93
	General Contracting	A5	ABC60	CD94
	Chemistry	A6	D62	BCD96
	Forestry	ABC22	BC63	BCD97
	Horticulture	A23	C64	D107
	Landscape Architecture	C29	C65	D109
	Minerology	C30	AC66	BC111
	Conservation	AB31	C67	D112
	Statistics	CD32	ABC70	
	Earth Science Teaching	AB33	AC71	
	Mining Engineering	B34	ABC72	
	Jewelry	AC35	ABC73	
	Gemology	C37	AB74	
	Geography	BC42	AC76	
	Mineral Shortage	C43	BC77	
	Research - Pure,	C44	BD78	
	Applied,	C45	ABCD79	
	Administration	C46	BCD80	
	Mechanical Engineering	C47	ABCD81	
	Nuclear Physicist	B48	BC82	
	Power Plant Supervisor	BC49	BC83	
	Teaching	C54	AD84	

Goal III: To explore careers related to space and atmospheric monitoring and control.

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES		
The student will be able to utilize meterological instruments: barometer, thermometer, psychrometer, etc.	Meterology Weather Observation Instrument Designing and Maintenance Climatology Radar Operation	A5 A6 A7 A8 A9 A10	A16 A17 A18 A19 A20 A21	ABCD88 D103 D112 D116 D117
The student will be able to interpret a weather map.	Aircraft Piloting Civil Engineering Military; surface and air operations Navigation	A11 A12 A13 A14	D52 C53 ABC60 AD84	
The student will be able to demonstrate the difference between convection, conduction, and radiation.	Astronomy Photography Teaching Optics Mathematics Computer Science			
The student will be able to visually observe and measure existing weather conditions.	Aeronautical Engineering Mechanical Engineering Combustion Engineering Environmental Engineering			
The student will be able to correlate raw meteorological data with general atmospheric conditions.	Metallurgy Cryogenics Weather Engineering Aeronomy			

Goal IV: To explore careers related to environmental health services.

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES	
The student will demonstrate a knowledge of the various functions and services of the local public health department. The student will recognize what constitutes a health problem. The student will demonstrate a knowledge of the many mass health services and their functions: i.e. TB Assoc., American Heart Assoc., Alcoholics Anonymous. The student will understand the differences in one career area such as nursing -- LVPN, RN, LPN, or medical technician versus medial technologist.	Health Services Communicable Disease Control Vital Records Environmental Sanitation Public Health Education Dental Hygiene Nursing - LVPN, RN, LPN Medicine Social Work Hospital Administration Medical Technology Dietetics Food Inspection Industrial Health Engineering Pharmacy Chemistry Sanitation Engineering Bacteriology	A12 A17 A27 C41 A59 ABC60 AD84	ABCD88 BD89 BC90 D108 D112 D116 D117

Goal V: To explore careers related to the development and control of physical man-made environments.

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES		
The student will be able to recognize the signs of environmental depreciation by examining his own school complex.	Statistics	ABC22	C64	BCD95
	Civil Engineering	C29	C65	BCD96
	Forestry	C30	C67	BCD97
	Horticulture	ABC31	ABC70	D103
	Landscape Architecture	CD32	AC71	D104
	Environmental Engineering (Univ. of Pa.)	C36	ABC72	D107
		C37	ABC73	D108
The student will recognize 3 different zoning areas within the city of Des Moines.	Conservation	C41	AB74	D109
	Pest Control	BC42	B75	D110
	Geography	C43	AC76	BC111
	Traffic Control	C47	BD78	D112
	Mass Transportation	B48	ABCD79	D113
The student will be actively involved in improving the school environment.	Public Service	BC49	BCD80	D114
	Photography	C50	ABCD81	D115
	Traffic Engineering	C54	BC82	D116
	Environmental Engineering	C55	BC83	D117
		C56	AD84	
The student will become actively involved in improving the environmental conditions in his neighborhood.	Auto Mechanics	C57	D85	
	Construction	BC58	BD86	
	Automotive Engineering	A59	BC87	
	Climate Control (interior)	ABC60	ABCD88	
		B61	BD89	
	Service Repair	D62	BC90	
	City Management	BE63	CD94	
	Trucking			
	Packaging			

Goal VI: To explore careers related to forest, range, shore, and wildlife conservation and control.

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES		
The student will demonstrate concern for the preservation of endangered wildlife species.	Biological Science	A1	C54	BC92
	aquatic biology	A2	BC58	C93
	biochemistry	A3	ABC60	CD94
	biostatistics	A4	B61	BCD96
The student will recognize the role of man as the ultimate consumer.	biophysics	A5	D62	BCD97
	Fish and game management	ABC72	BC63	C98
		A23	AC68	C99
The student will participate and understand correct species harvesting (hunting and fishing).	Forestry	D24	AC69	C100
	Oceanography	D25	ABC70	C101
	Naturalist	A26	BD78	D105
	Range Management	AC35	ABCD79	D106
The student will identify good shore management as related to usage, aesthetics, and wildlife management.	Soil Conservation	C37	BCD80	D110
	Watershed Management	C38	ABCD81	D112
	Wildlife Management	C40	AD84	
	Recreation	C43	B85	
	Commercial Fishing	C47	BD86	
The student will research the change in public awareness information.		BC51	BC91	
The student will gain personal satisfaction from physically participating in a conservation activity.				

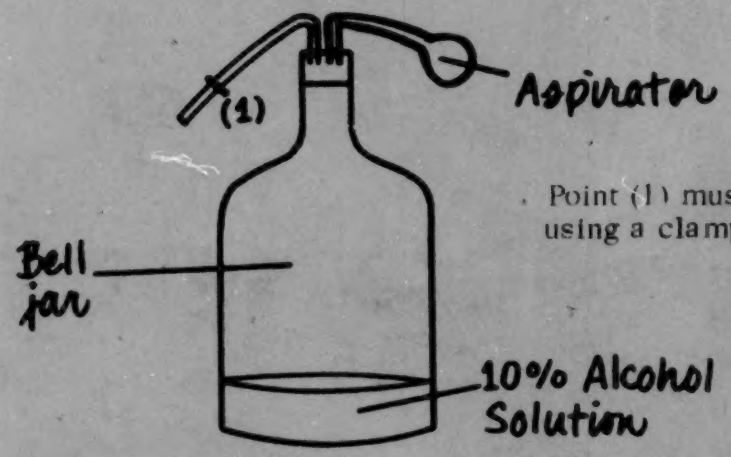
Goal VII: To explore careers related to water resource development, conservation, and control.

BEHAVIORAL OBJECTIVES	CAREER AREAS	RESOURCES	
The student will be able to demonstrate an understanding of the water cycle.	Bacteriology	A17	BD78
	Chemistry	A18	ABCD79
	Engineering	ABC22	BCD80
	chemical	A23	ABCD81
	hydrological	D24	AD84
	environmental	A26	B85
	mechanical	A27	BD86
The student will be able to trace the possible sources of various contaminants (for example: nitrates) in a water supply.	Recreation Development and Management	D28	BC91
		AB31	BC92
The student will be able to predict the state of the Earth's fresh water supply in the near future.	Geology	C36	C93
	Microbiology	C37	CD94
	Plumbing	C39	BCD96
	Law	C41	C9[illegible]
The student will be able to analyze various methods of water purification.	Water Quality Control	C43	C99
	Park Management	BC51	C100
	Conservation	C56	C101
		C57	D102
The student will be able to evaluate measures that his household can practice to reduce water consumption.		BC58	D105
		A59	D106
		ABC60	D112
		D62	
		BC63	

CODE NUMBER	ACTIVITY CODE
A-1	Perform Soil Tests - alkalinity, nitrogen, phosphate, potassium content, porosity, soil pi showing layers
A-2	Soil Profile. Analysis, and Classification (micro and macro)
A-3	Growth Demonstrations: flats, pots, seed germination, terrariums
A-4	Develop school campus living eco plot a) free seeds of native grasses are available through Iowa Conservation Commission (also shrubs present available) b) A MUST - "Outdoor Classrooms", U.S. Government Printing Office 0-437561 available at the State Soil Conservation Service Office - contact Bill Mills
A-5	Temperature and Germination 'nvestigations
A-6	Profile Shape Analysis: a) a funnel shaped dropping tower using sorted particles b) water experiments: leaching, caleaches flowerpots c) wind experiments: particle distribution, cover, profile shapes

84

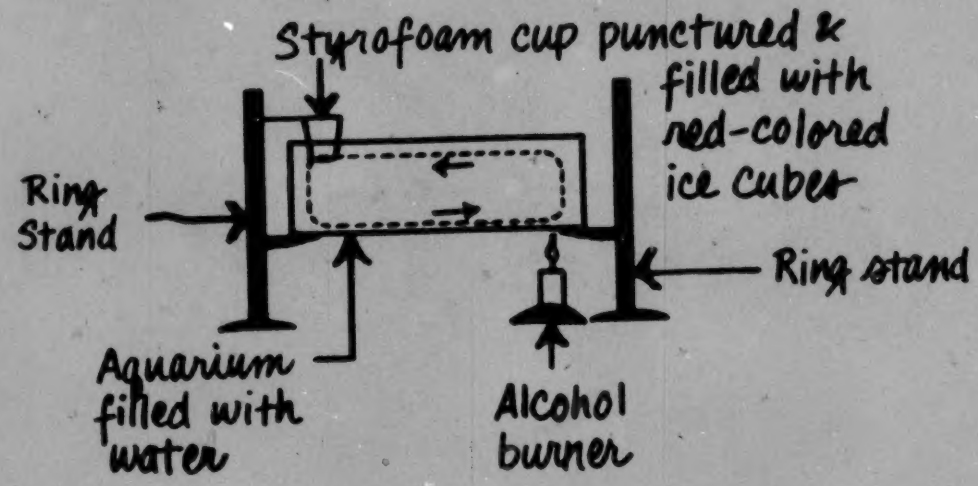
CODE NUMBER	ACTIVITY CODE
A-7	Production of clouds: a) use vacuum pump, bell jar, and particles from lit matches b)



Point (1) must be sealed off using a clamp or your finger.

Procedure: Introduce smoke from a match into the container.

CODE NUMBER	ACTIVITY CODE
A-8	Convection Currents: a) Use a convection tube b) Aquarium Method



CODE NUMBER	ACTIVITY CODE
A-9	Star Movement (apparent) homemade astrolab· utilize vertical and horizontal angle readings over 2 hour periods (3 readings required)
A-10	Time lapse photography of the night sky
A-11	School yard construction of a sun dial
A-12	School yard construction of a meterological station
A-13	Collection of 30 consecutive newspaper weather maps to use in predicting future weather conditions.
A-14	Celestial globe: to illustrate equinoxes, solstices, ecliptic, constellations of the zodiac.
A-16	Sun Spot Observations: Take a large sheet of oak tag and cut a hole in the center to correspond to a magnifying lens. Tape the lens over the hold and fasten the entire sheet to windows facing the sun. Darken the rest of the room except when oak tag is fastened. Place small piece of oak tag on a table in front of the magnifying lens. Focus and observe the sun spots.
A-17	Make weather observations using meteor logical instruments and/or newspaper accounts, record the data and use this data to predict the weather.
A-18	Calculate the weight (in tons) of water that would fall on the city of Des Moinès (or the school grounds) during a certain rain. Consider the source of this water as the Gulf of Mexico. Calculate the number of tank trucks necessary to transport this amount of water, etc. Use this as a means of illustrating the energy necessary for this to take place.
A-19	Do a study of gasoline blends as related to seasons and climatic regions.
A-20	Do a study of how hybrid seed corn is bred to adapt to specific climatic conditions.
A-21	Describe a "beautiful day" (meteor logically speaking).

CODE NUMBER	ACTIVITY CODE
A-22 B-22 C-22	Examine the development of a watershed (for example Big Creek) or a forest (for example- Stevens State Forest or Yellow River Forest) a) establish the need - recreation, lang management b) engineering specifications c) financing d) acquisition e) development f) managment and usage
A-23	Study a sample plot to show the existing interrelationships of the organisms and the physical environment.

From The World of Living Things by Paul F. Brandwein, et al. Copyright 1964, 1960, copyright 1956, 1953 by Harcourt, Brace Jovanovich, Inc. Reprinted by permission of the publisher.

CODE NUMBER	ACTIVITY CODE
D-24	Wildlife Management Activities, p.p. 461-463, The World of Living Things

1. **Scats and droppings.** On your field trips to the forest, make a wildlife record from scats that you observe. You can tell a great deal about living things in a forest in this way.

Scats or droppings in an area mean, of course, that a bird or mammal was there. Their freshness may tell how long ago. Their contents may reveal just what the animal had been eating. From this information, an ecologist may know that the animal is starving—or fat—for animals, like humans, have favorite foods and others that they will not eat unless they have to. You, too, can learn what these signs mean.

You can also tell something about the numbers of animals from the scats. For example, scats of three different sizes might tell the wildlife scientist that two adult deer and a fawn passed that way.

2. **Feeding signs.** On the same or another field trip, study the different kinds of wildlife in your area and make a chart of the foods that each species eats. You will need to watch for the kinds of feeding signs described below.

Feeding signs are closely related to scat signs and give the ecologist additional data for his population estimates. By looking at the end of a twig which has been chewed down, he may be able to tell whether the feeder was a deer or a rabbit. Of course, the deer feeds at a much higher level. Since the teeth of these two animals are greatly different, the appearance of the chewed end gives him useful information. The deer is an ungulate, or hoofed animal. It has biting teeth (incisors) only on the lower jaw. Therefore, when it browses on twigs, it chews through the bottom part and then pulls, leaving a string of bark attached to the stem.
Browsed twigs at *different* levels are another indication that several animals passed by.

The rabbit, however, is a rodent, which has two large incisors in each jaw. It feeds by cutting off a twig or leaf and then eating it. Rabbits also feed on the bark of some trees, especially fruit trees, in winter—and they sometimes kill the trees by their feeding habits.

Among the most common signs in the woods are the chewed pine cones, nut shells, and acorns left by squirrels. You will note generally that the feeding signs are atop a stump or rock from which the squirrel can look around for possible enemies.

CODE NUMBER	ACTIVITY CODE
D-24	Wildlife Management Activities (continued)

Do you know what kinds of teeth other animals have? This would make an interesting question for research. As you visit the forest, collect signs of animal wildlife—browsed twigs, chewed nuts, barked branches. Arrange them in exhibit, carefully and clearly mounted and labeled.

3. **Evidences of work or play.** Included among these wildlife signs are the claw marks left by bears on trees, slides made by playful otters on a muddy stream bank, dams and lodges built by beavers, and wood chips at the base of a tree in which a woodpecker has built a nest. There are many other signs. Keep your notebook handy to record each new sign as you observe it.

4. **Evidences of struggle.** The woods are full of the evidences of the struggle among the wildlife populations. These evidences are often overlooked, and often never encountered on a field trip. You should, however, watch for them so that your study of wildlife ecology may be more rewarding. Of course, one of the most memorable evidences of struggle is the battle itself—a flock of crows divebombing a great horned owl, a bird screeching at a snake which is stealing her eggs from the nest, a chipmunk scampering from an enemy.

Less dramatic, but more often seen by the keen-eyed observer, are the bits of fur and feathers that tell clearly a story of a battle lost—or won. But the winner may not be known. Look closely for these evidences on a field trip.

5. **Tracks.** Perhaps tracks should have been listed first, for they are the signs that are the best known and probably the most used by those who understand the ways of life in the wild. Certainly tracks are important signs for the hunter who is looking for game, and indeed, they give the wildlife scientist much information about populations. Tracks are especially useful in determining the direction in which wildlife is traveling; and, if there are enough of them, they mark the paths used by wildlife.

Tracks may lead you to the homes of wildlife, especially in winter, when tracks can be most easily followed in the snow.

When you find clear tracks of animals, it is interesting to make plaster casts.

Making casts of animal tracks found in the mud or snow is easy and fun. All you need is a jar or tube of Vaseline, water, plaster of paris, and a sheet of heavy paper. First, clean out the track (it may have leaves, twigs, or a stone in it). Line the track with Vaseline. (This makes it easy to clean the dirt off the cast later.) Make a collar about 2 inches high around the track. Then pour the plaster of paris (which has been

CODE NUMBER	ACTIVITY CODE
D-24	Wildlife Management Activities (continued)

soaked in water to make a thick soup) into the track. The collar will help to keep the plaster in bounds.

When the plaster has set (a few hours will do), lift it out of the track. You will now have a model of the animal's foot. Clean it off and label it.

6. Nests, beds, or roosts. The best evidences that certain wildlife species are living in the area you are studying are the nests they build. Nesting habits are the easiest way to determine the populations of many birds and of some mammals like the gray squirrel. There are two times of year when it is easy to locate the nests of birds. The first is the early summer season when parent birds are feeding their young in the nest. At this time, the parents will make hundreds of trips to the nest daily. The mother bird will often help you by screaming at you as you get close. If you sit quietly at this time, the feeding will resume and you can locate the nest. The other time to locate nests is just after the first snow of winter. The nest will have snow forming a column above it and is easily seen. In winter, however, you will have to determine what kind of bird built the nest by noting the characteristics and looking in a bird book. Be sure to note the location, height above ground, type of tree in which the nest was built, and the materials used. Each of these items of information represents a species factor for some kind of bird.

As you watch the habits of birds and mammals through several seasons, you will discover, from their nests and other signs, that some are found in your regions only at certain times of the year. Others live in the region the year round. Make a chart of birds and mammals that (a) live in your community, or (b) pass through during migration.

32

CODE NUMBER	ACTIVITY CODE
D-25	Range Activities, pp. 463-466, The World of Living Things

Grasses,

can be easily recognized by their hollow, jointed stems, and two rows of leaves which form a sheath around the stem. These "true grasses" are the most important range plants. Most common grasses are wheatgerm, cheatgrass brome, and buffalo grass.

Sedges grow in areas that are very wet or where the soil is poor. They can be recognized by their triangular (three-sided), solid (not hollow) stems.

Forbs are broadleaved herbs which grow among the grasses and sedges. Range flowers are found in this group. They include yarrow, dandelion, and many others. You will need a wildflower book to identify them all.

Shrubs you will remember, are the small, many-stemmed woody plants like the sagebrush and mesquite.

1. **Making a range plant collection.** To make a plant collection, you will need a trowel, dandelion digger, or shovel; a knife to trim plants; and a plant press. The plant press can be made from two 14" x 20" pieces of plywood (with several holes for ventilation), two straps, and several layers of newspaper or blotting paper for dryers.

Dig plants when they are in flower. Be sure to dig them with plenty of roots. A complete plant should have roots, stems, leaves, and flowers. Make a note of all information about each plant before you collect it, including where it is growing and the kind and condition of soil. Remove carefully all soil and dead material from your specimen.

Place your plant on a herbarium sheet, 11½" x 16½". If your plant is too tall to fit on the sheet of paper, the plant can be bent into an N. Glue the plant to the paper, holding the plants down with weights until the glue dries.

Now put your specimen in the plant press (before it wilts) between two layers of porous paper for drying it. If you use newspapers, they should be changed daily to prevent fading of your specimen.

A plant label should be placed in the lower right-hand corner of the specimen sheet. It should have the following information:

1. name of plant
2. location, habitat
3. forage value
4. your name
5. date plant was collected

After all the plants you collected have dried, they may be mounted in a book or on an exhibit board. Photographs of the range or pasture community where they were collected will add a great deal to your exhibit.

33

CODE NUMBER	ACTIVITY CODE
D-25	Range Activities, (continued)

2. **Range plant groups.** Range ecologists group range plants into three main groups, depending on their food value, desirability to livestock, and toughness (resistance to grazing by animals). These groups are labeled according to the colors of a traffic light—green, yellow, and red.

Green group plants are the very desirable native plants. They are tender, tasty, and not resistant to heavy grazing. They are called "decreasers" because they tend to decrease as grazing becomes heavy. As the green group plants decrease, they are replaced by *yellow group plants*, other native grasses which are less tender, less tasty, or shorter. They are called "increasers" because they increase in numbers as grazing becomes heavy and green group plants decrease.

The *red group plants* are "invaders," usually outsiders which move in when green and yellow plants decrease. Their presence in the range or pasture means trouble—overgrazing, loss of protection for the soil and water, loss of range plant production.

The range ecologist must know his plants in order to watch for signs of change in his range. He must keep a constant record of the percentages of each plant group on his range. If you live in a range state, you must know the following range plants in order to keep a record of the range condition.

1. Decreasers—western wheat, needle and thread, side oats gramma, prairie clover, little blue stem.

An excellent range condition rating (a climax community) must have at least 15 per cent of these decreasers.

2. Increasers. In excellent range, the percentages should be as follows: blue gramma, 70 per cent; buffalo grass, 10 per cent; perennial forbs, 5 per cent; sedges, 5 per cent.
3. Invaders. There should be none in excellent condition range. Among the invaders that may be found are Texas crabgrass, snakeweed, sage, and annual forbs.

The range condition, then, may vary all the way from the excellent "climax" to poor, depending on the percentage of climax plants:

Excellent	75–100 per cent climax plants
Good	50–75 per cent climax plants
Fair	25–50 per cent climax plants
Poor	0–25 per cent climax plants

CODE NUMBER	ACTIVITY CODE
D-25	

Range Activities (continued)

It is interesting to measure and make a record of the relative numbers of range plants in the three plant groups (green, yellow, and red) on excellent, good, fair, and poor ranges. You can do this in any number of ways, from throwing a dozen stones and finding out what kind of plant they fall near, to using the famous "10-point stick" used by range clubs in the West.

To make a 10-point stick, take a board 4 feet 7 inches long and 4 inches wide. Drive ten sixteen-penny nails through the board 1 inch from one edge and 5 inches from the end and 5 inches apart, and your stick is finished.

Now all you need is a notebook to record your data and a piece of range or pasture to study. If you do not own one, ask a local rancher or farmer if you can study on his land.

Pick out areas of excellent, good, fair, and poor range. Prepare a sheet of notebook paper for each one, listing all the plants of the green, yellow, and red groups. You are now ready to start your investigation.

In each range area, go to a place that looks typical. Drop the 10-point stick and record the plants which are touched by a point. Repeat ten times, keeping on a straight line just as in the timber cruise in the forest. Keep a record of the number of times each species of plant is touched. Now you can add up the total for each plant species.

Repeat this procedure for each range condition.

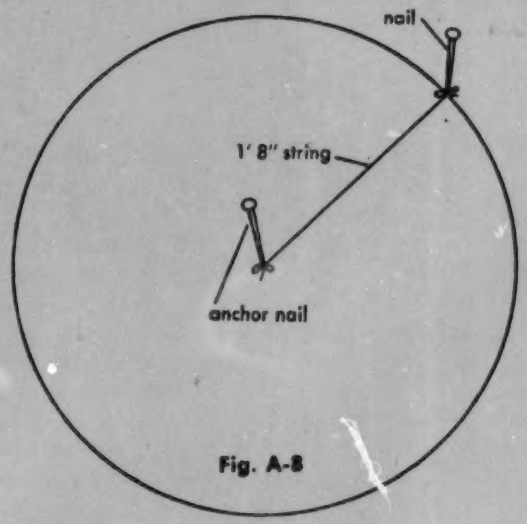


Fig. A-8

3. **Estimating forage yield on an acre.** Range ecologists often need to know how much food (forage) is being produced per acre of rangeland. This is a good indicator of general range condition. To find out what the forage yield is, all you need is two nails, a string 1 foot 8 inches long, a pillow case, and a pair of lawn clippers. Look at Fig. A-8. Doesn't it remind you of the forest cruise plot? It should, because the technique is the same. You will use a small sample (or several) to estimate the whole acre area.

Push one nail into the ground. Keeping the string tight, mark a circle on the ground with the other nail, which is tied 1 foot 8 inches from the anchor nail. You may need to use chalk dust or powdered limestone to make the circle clearly visible on a grassy surface.

CODE NUMBER	ACTIVITY CODE
D-25	Range Activities (continued) With the lawn clippers, cut all the plants inside the circle at the height at which animals would normally graze. (Do not include plants which the animals would not eat.) Stuff the cut plants into a pillow case or place them on a sheet. Weigh the sample, less the weight of the pillow case. Multiply the weight of the sample by 500 to get the forage yield in pounds per acre. Check several sample plots and divide the total results by the number of plots to be sure of a good average sample.

36

CODE NUMBER	ACTIVITY CODE
A-26	Population study of wildlife in your own back yard, school ground, community, etc.
A-27	Collect water from polluted and non-polluted sources. Use the micro-organisms (for example - the alage present) to help in judging the water quality.

37

CODE NUMBER	ACTIVITY CODE
D-28	Water Community Activities - pp. 466-470, The World of Living Things

1. **The ecologist studies a stream.**

At first glance, the stream may appear to be almost lacking in living things. Then you notice a water strider skimming over the surface and a school of tiny minnows in a quiet portion of the water. To make a real study of a stream, you will need to examine it more closely. A few pieces of homemade equipment will be helpful. You will need:

- **boots (or sneakers if the water is warm)**
- **a thermometer**
- **a seine.** Most states allow you to use a seine up to 4' x 8' in size—a standard minnow seine. You can make one (Fig. A-9) by sewing several opened burlap bags together. Attach a pole on each end and put weights on the bottom to keep the seine in contact with the bottom of the stream.
- **a bottom rake.** This can be easily made by tying a burlap bag to a garden rake so that the tines of the rake hold the bag open.
- **a sieve.** This can be as small or as large as you wish. A good one can be made by putting wire mesh over one end of a box and letting the water run through the box.

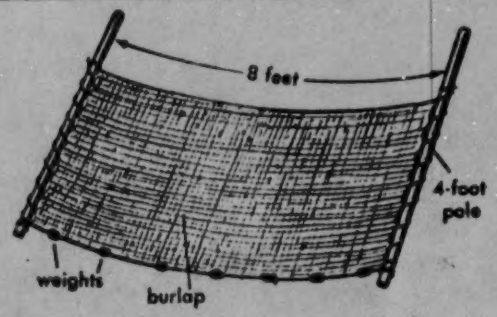


Fig. A-9

- **a nylon plankton net.** The open end of one of your mother's stockings can be sewed to a circular wire and the wire tied to a string. The stocking will stay open like a net as you hold it in the stream. Any animals so small that they would pass through your sieve will be held in the stocking.
- **a watch with a second hand**
- **assorted bottles and cans for carrying your catch.**

Once you have assembled or made your equipment, you are ready to explore a stream. Your first discovery will probably be that the rocks on the bottom of the stream are very slippery. Place a small rock in a jar of water. You will see that the rock is covered with algae. Look closely! There are several tiny animals clinging to the algae. The water is not lacking for life at all. It is alive with all kinds of living things. Now you will use some of the equipment.

38

CODE NUMBER	ACTIVITY CODE
D-28	Water Community Activities (continued)

The stocking and the sieves can be set up just below where you are exploring. Then any animals you dislodge as you pick up rocks and sticks from the bottom of the stream will be caught as they float downstream.

At first you will just want to turn over stones to see what is living on the bottoms. You should find many insect larvae (including the caddis fly which makes a fine case of sticks or sand grains in which to live), sponges, flatworms, and many other animals.

Rake the bottom with the bottom rake, making sure that the burlap bag is always downstream from you so that any animals carried by the current will be caught in the bag.

After you have captured specimens of the animals living on the bottom of the stream, you will want to try the big seine. Two of you can use the seine. Pick out a quiet stretch of stream and walk *upstream*, making sure that the seine is touching the bottom as you go. You will notice that many insects and minnows are moving along ahead of the seine. When you are ready for a catch, lift the seine quickly, angling it toward the shore. A little practice will make you an expert seiner.

What have you caught in your net and sieves downstream from where you have been working? Turn the net inside out and dip it up and down in a can of water. This will wash off any tiny plants and animals that you caught. Be sure there is enough water (taken from the stream) for all the animals and plants. You will want to return all the organisms to the stream after you have studied them. Therefore, take care of them.

If you plan to take them to the classroom, remember that animals living in a stream need an aquarium into which air is constantly being pumped. A small aerator will do.

These tiny plants and animals are plankton. They are the beginning of a food chain for the trout and other fish—and for man. You can see now why the stream ecologist is interested in them. He knows that without the tiny plankton, there would be no food chain, no trout—no fishing for man.

The burlap bag will also prove interesting when turned inside out. Many of the tiny plankton have passed through it, but you should have many larger animals. Did you catch a crayfish? a clam? a dragonfly larva? Was there much mud in the bag? How is this important to the insects and fish in the stream? What lives on the crayfish? The other animals you found? Ecology is really the science of relationships among living things, as you are continually seeing.

What do the stream banks tell about living things? Were there any frogs, snakes, adult dragonflies, muskrat scats, raccoon tracks, or other evidence to show that other animals besides you came to the stream to look for the kinds of living things you found in your investigation?

39

CODE NUMBER	ACTIVITY CODE
D-28	Water Community Activities (continued)

Before you leave the stream, look under any wet log or stone along the shore. You should find some salamanders and beetles to add to your collection.

While this may have been fun, it was also a valuable lesson in ecology. The fisheries biologist who is interested in trout populations knows that if he finds many aquatic insect larva, there will be plenty of food for trout. He also knows that the stream is not polluted with wastes, pesticides, or detergents which kill the insects in the stream.

2. **How much water is flowing?** The stream ecologist is also interested in the supply of water in his stream. Measuring the flow of water tells the scientist about the water supply. Measuring the flow is not hard to do, and the only equipment you will need is a watch with a second hand (a stopwatch would be better) and a yardstick.

Pick out a place in the stream where the sides are straight for about 20 feet and the bottom is fairly level.

The first step is to measure the volume of water in a section of stream. Look at Fig. A-10. You will see that the section of the stream is like a box.

Its volume will be equal to 20 feet times the average width of the stream measured along several lines, times the average depth along several lines.

Volume = length x width x depth
Cubic feet = ft. x ft. x ft.

Now all you have to do is find out how long it takes your box of water to pass from A to B. Have a friend drop a leaf at point A. When the leaf has moved to point B, all the water in the box will have moved from A to B. How long did it take? Divide your volume (cubic feet) by the number of seconds it took for the leaf to move from A to B. Your answer will give the rate of flow of the stream in cubic feet per second. If you multiply the number of cubic feet by 7.5, you will have approximately the stream flow in gallons per second.

You can keep a year-long record of the flow of water in the stream. How fast does the stream flow after a rain? How long does it take it to return to normal? Does it carry mud or silt? These are data and information a stream ecologist must know.

3. **The ecologist studies a pond.**

The equipment you will need is about the same as that you used in studying the stream. You can also make good use of a few old kitchen strainers. Tie one or two to a long pole if the pond is deep.

CODE NUMBER	ACTIVITY CODE
D-28	Water Community Activities (continued)

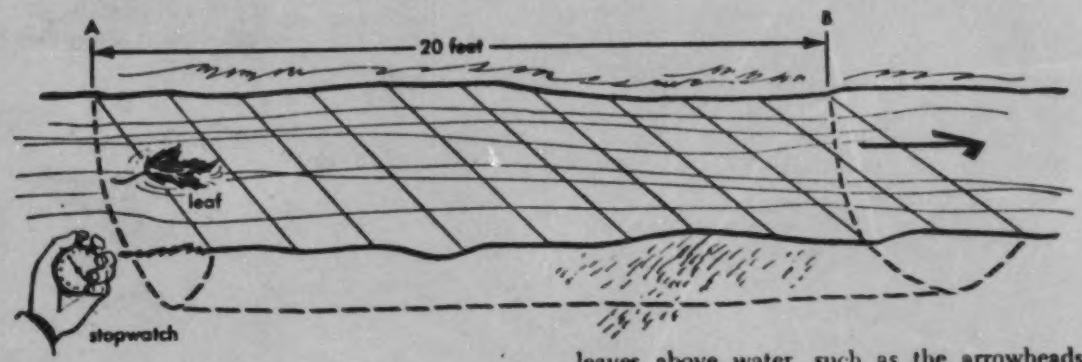


Fig. A-10

As you approach a pond, always go quietly. Of course, you should do this on any field trip, but it seems especially important on the way to a pond. Many kinds of birds and wildlife come to a pond for water and food and, if you go quietly, you may see some of them. You may see a deer—or heron, blackbirds, kingfishers, or ducks, or muskrat or hawks. As you come near the pond, stop and look for turtles sunning themselves on a grassy bank or floating log.

The pond is indeed a different kind of community. The water is still and deep and quiet.

Refer to the section on plant succession in water in Chapter 11. Now you can see the various zones of vegetation—the floating plants, duckweed, and algae; the emergent plants which have their roots in the water but their leaves above water, such as the arrowheads, pickerelweed, and cattails; the grasses and sedges of the water's edge; and the alder and willow shrubs along the shore. Each one adds a little to the filling of the pond and its transformation to a marsh and then to the forest or grassland community.

Look at the surface of the pond! There you may see the water striders, which do indeed stride over the water; the whirligig beetles; the backswimmers which swim along upside down, using their hind legs as oars; and water boatmen, which also use their hind legs as oars but do not swim upside down. You may also see mosquito larva if you carefully take water from the surface in a white cup.

Floating leaves, either alive or dead, are excellent collecting places. Take a submerged leaf, put it in a jar of water, and watch it. It may have hydra attached, or water snails, or

CODE NUMBER	ACTIVITY CODE
D-28	Water Community Activities (continued)

water mites. Look for the eggs of insects and snails. Take some of these back to the school for examination with a microscope. With the microscope, you will be able to see the eggs clearly, and also any larvae developing in them. Do you find any small masses of jelly in which you can see individual animals under the microscope? These are probably colonies of Bryozoan (bry-uh-zoh-un) animals.

You may want to try your seine or net in the pond too. You will find many animals swimming about below the surface of the pond. Many of them will be feeding on the living things you just discovered on the floating leaves. Among the animals you may find are many small crustaceans, water fleas, insect larvae, crayfish, beetles, giant water bugs, and snails. Once again, it is easy to see that there are some complicated food chains in the pond for the ecologist to work out.

You should drag up a scoop of mud from the bottom of the pond in a pail or sieve. Empty the contents of your pail on the shore and watch. As the water drains out, the mud and leaves may seem to be alive with animals. Here you may find the large dragonfly larvae, salamanders, snails, clams, leeches, and worms. If you dump one handful of bottom mud and leaves into a large glass pickle jar, you may see what is meant by the dependence of living things upon one another in a community. The dragonfly larvae, if there are any, will be seen eating everything in sight. If you have a large water bug, it will attack fish and frogs, driving its long piercing mouth parts into the animals and feeding on them.

4. Cycles in a pond. There are other inhabitants of the pond which you will probably not see, unless you see a dead fish or frog. Even then, you will need to use a microscope. These inhabitants are the bacteria which feed on the wastes of the pond. Yes, every animal takes his energy from the pond; every animal contributes something to the pond. The cycle of energy goes on and on, through one body after another, then back to the bottom mud to be used again. The energy may leave the pond when a frog hops onto the bank and is eaten by a heron. Or energy may be carried into the pond when the toad leaves the woods in the spring to mate and lay its eggs.

The pond ecologist is interested in more than the inhabitants of the pond community. He is interested in the water itself, and especially in what the water is holding. Water is a solvent as you have learned; it dissolves many substances and holds them in solution. Water in an average pond may contain 150 parts per million of calcium, potassium, sodium, and mag-

CODE NUMBER	ACTIVITY CODE
D-28	Water Community Activities (continued)

nesium salts. You know also that many substances that do not dissolve in water may be carried in suspension. For example, clay may be suspended in water and affects its color and the amount of sunlight that will penetrate through it to the plants under the surface.

Water absorbs gases, as you know. Fish and other aquatic plants and animals get their oxygen and carbon dioxide from the water. The relationship of the oxygen and carbon dioxide is of great interest to the ecologist. He knows that plants giving off oxygen as they carry on photosynthesis during the day increase the oxygen near the surface. This extra oxygen is used to form bicarbonates in the water, making the water more alkaline during the day.

At night, the tiny animals move to the surface to feed on the plants. So do the fish which feed on them. They use up the oxygen and increase the carbon-dioxide in the water at the surface. This makes the pond water more acid at night.

Lack of plants in very deep water means that there will be little oxygen at great depths in a pond. This lack of oxygen may explain why it takes so long for an old submerged stump or log to decompose on the bottom. The action of bacteria that are able to decompose organic substances without oxygen is very slow.

Water has one more property which is most important in the ecology of a pond. That is its density. Density is the weight per unit volume, as the weight per cubic foot. The density of water is greatest at 4° C. Because of this peculiar property, the water in a pond is turned over and mixed twice a year, redistributing its nutrients and oxygen. Here is how this works.

As water cools in the winter, it gets heavier, and at 4° C. drops to the bottom of the pond. As the top cools to 0° C., it remains above the denser water at the bottom, and finally freezes into ice. This forms an insulating blanket over the pond and keeps the pond from freezing solid. This warmer water (4° C.) at the bottom of the pond is most important. It provides a relatively warm environment for the frogs, salamanders, insects, and other pond animals which spend the winter on the bottom of the pond or in the mud beneath it.

In the spring, the top layer of the pond warms up first. When it has warmed to 4° C. (becoming heavy again), this surface water sinks to the bottom, turning over the water in the pond again. Thus, the water in the bottom of a pond is warm in winter and cold in summer in relation to the water at the surface.

43

INTRODUCTION

In recent years home gardening has become more important as an economic factor in many households and decorating with indoor plants has become increasingly popular. Agri-business and vocational agriculture courses are being implemented in many school systems in response to this trend.

As a result of this upsurge of interest in plants, the revision committee felt that a goal dealing with horticulture and related career areas should be added to the Career Education Handbook for Environment. The basic idea is to involve and interest the students in learning how to grow and care for their own flowers or vegetables, both aspects of which have career potential or at least potential for an important part of the students' leisure time activities. The new unit dealing with Goal VIII has been arranged differently from the rest of the materials found in the handbook. It is felt that this presentation will be more workable as the problem of finding the coded pages has been eliminated by grouping all materials together in each subsection.

GOAL VIII: To explore Horticulture as it relates to: (a) specific career opportunities and (b) areas of personal value.

BEHAVIORAL OBJECTIVES: As a result of this particular teaching activity, the student will:

1. Demonstrate an understanding and knowledge of basic plant physiology and anatomy

2. Successfully propogate plants from seed cuttings and demonstrate knowledge of other forms of plant propogation

3. Demonstrate an understanding of soil types and soil components and their relationship to good plant growth

4. Demonstrate knowledge of horticultural principles and techniques by caring for plants in the classroom

5. Be able to list and describe at least five careers that utilize horticulture

6. Identify five different common house plants and five different common trees

7. Demonstrate knowledge of the inter-relationships of green plants with the environment

CAREER AREAS:

- Horticulture
- Nursery Management
- Farmer
- Geneticist
- Agronomist
- Forester
- Truck Gardener
- Turf Management
- Landscape Architect
- Plant Scientist
- Interior Decorator
- Home Gardening

Suggested Student Activities

1. Identify basic soil components (litter, duff, humus, sand, etc.) and investigate the importance of each to the development of a rich, productive soil.

2. Study the different kinds of potting soil ingredients and formulas and prepare a large supply for future class use or for sale.

3. Study the formation of soils, the relationships of the horizons, what each horizon contributes to overall fertility. Students should bring in samples from various areas to be examined.

4. Perform simple soil tests from available test kits (e.g., pH, temp). Prepare a micromonolith as outlined in the Forest Service Guide Book included in the appendix of this section.

5. Study the various organisms found in the soil and their importance to soil formation. This activity can be used in conjunction with insect study, microscope use, and invertebrate studies. Have students try to determine what each organism contributes to the formation of the soil.

6. Conduct various plant growth experiments using soil and light variations.

7. Conduct plant growth experiments to determine the effects of fertilizer. Find out what the contents of commercial fertilizers are and determine their role in plant growth.

8. Develop a garden plot using organic techniques for pest control and fertilizing.

9. Incorporate the study of plant anatomy and basic photosynthesis while students are growing their plants so that they will have a basic working vocabulary.

10. Study and develop working compost pile either outdoors or indoors in large plastic pails or garbage cans.

11. Conduct individual plant growth activities using several different methods of plant propogation, e.g., seeds, slips, bulbs.

12. Groups of students may be interested in trying hydroponic techniques (soil-less plant growth).

13. Conduct plant growth experiments as related to variations in moisture, fertilizer, light and other environmental factors.

14. Develop a garden plot for the production and sale of flowers or vegetables.

15. Take neighborhood field trips to identify common trees using keys.

16. Obtain Wildlife Packet of trees and shrubs for planting on school grounds.

17. Develop a suitable area of the school grounds into an outdoor classroom.

18. Start a "horticulture" or "gardening" club for those students who are highly involved.

Resource Personnel

Vocational Agriculture - Tech High	Tom Hensley	284-7846
Pioneer Seed Corn	Jack Wallace	288-3691
Des Moines Greenhouse	Mr. Dickinson	283-4148
City Forester	Ray Bair	283-4194
State Horticultural Society	Corwin Hicks	281-5402
Goode Greenhouse	Mr. & Mrs. Joe Goode	262-6504
Garden Clubs of America	Mrs. Paula Brown	270-6115
Heard Gardens	Bill Heard	276-4533
Hoskins Landscaping	- - - -	276-6243
Des Moines Garden Club	- - - -	- - -
Organic Gardening	Mrs. Peter Janss	288-5198
Green Thumb Distributing - Ankeny	Dale Lundgren	964-2362
Living History Farms	Director	278-8936
City Parks & Recreation Horticulturalist	Bob Willis	283-4915

48

Resource Material

Environmental Information and Education	Iowa Dept. of Environmental Quality -- no charge
Eco Idea Packet	ISEA -- no charge
City People's Book of Raising Food	Helga and William Olkawski, Rodale Publishing
Wildlife Habitat Teacher's Kit	National Wildlife Federation 1412 Sixteenth St. NW Washington, D.C. 20036 -- no charge
Chevron Chemical Co. - Ortho Division (write for material on lawn and garden care, etc.)	200 Bush St. San Francisco, Calif. 94120
Contour Series (Soil Ecology and Terrestrial Ecology)	Addison Wesley Publishing Co.
Teaching Materials for Environmental Education - Investigating Your Environment, 1973	U. S. Forest Service Dept. of Interior
Hanging Plants for Modern Living and Foliage Plants for Modern Living	Merchants Publishing Co. Kalamazoo, Mich. -- $2.95 each (also available from Green Thumb Distributing, Ankeny)
How to Grow Houseplants and numerous other titles of interest	Sunset Books Lane Publishing Co. Menlo Park, California
All About Vegetables	Ortho Books
Plant charts (photographs of common house plants and names)	1 per teacher available from Dale Lundgren, Green Thumb Dist., Ankeny (Larger quantities can be ordered -- $1.25 each)
Wildlife Packet (200 trees and shrubs)	Iowa Conservation Commission

Plant and Garden Booklets:

P-799 - Terrariums
P-800 - African Violets
P-801 - Begonias in the Home
P-802 - Beautiful Bulbs
P-803 - Cactus & Succulents
P-804 - Ferns & Palms
P-805 - Flowering Plants
P-806 - Foliage Plants
P-807 - Vines in Your Home
P-808 - Herb Gardens
P-809 - Philodendron
P-810 - Bonsai
P-811 - Container Planting
P-814 - Japanese Gardens
P-815 - Hardy Annuals
P-816 - Succulents in the Garden
P-818 - Orchids in the Home
P-819 - Tender Annuals
P-820 - Fall Bulbs
P-821 - Vegetable Gardens
P-823 - Simple Flower Arranging
P-824 - Orchid Culture
P-829 - Roses
P-831 - Water Gardens
P-835 - Roses in Your Garden
P-838 - Evergreen Shrubs
P-839 - Geraniums
P-842 - Flowering Trees
P-844 - Peonies
P-845 - Tulips
P-846 - Arranging Artificial Flowers

Green Thumb Distributing -
P. O. Box 40
Ankeny, Iowa 50021 --
49¢ each - $3.00 dozen

50

Suggested Fieldtrips

Des Moines City Greenhouse

Living History Farms

Callanan Outdoor Classroom

Ewing Park Children's Forest

Hoskins Nursery (small groups)

City Nursery

State Forest Nursery, Ames, Iowa

Iowa State University Horticulture Department

Corn Borer Research Station, Ankeny, Iowa (Administered by Iowa State University)

City Golf Course - techniques in turf and greens management

SAMPLE LESSON PLAN

INVESTIGATION: To investigate the growth rate of plants grown in sand, clay, topsoil and a prepared potting soil.

MATERIALS NEEDED:
- -soil samples
- -milk cartons or other containers
- -metric rules
- -graph paper
- -seeds (bean or corn)

SPECIFIC OBJECTIVE: To demonstrate that good soil is essential to vigorous plant growth.

ANTICIPATED OUTCOME: (prediction) A difference in plant size and quality will become more apparent as the investigation progresses.

PROCEDURE: (allow a minimum of two weeks for this activity)

- -use as a teacher demonstration with one set on materials or with lab groups of 2, 3 or 4 students per group with a separate set of materials for each group.
- -set up materials so that the following factors are constant for each set; light, temperature, water and depth of planting.
- -discuss with the students the need for controlling the above-mentioned factors.
- -take time to make some predictions about the expected results (make a record of your predictions).
- -prepare tables for recording your measurements and observations.
- -record observations before the plants emerge.
- -after emergence, make measurements and observations every other day and record the data.
- -graph the growth in centimeters of the plants in the different pots, using the <u>average</u> height of the plants in each container.
- -graph all four growth curves on the same sheet of paper for the purpose of comparison.
- -after the first week, predict the height of the plants in each container (based on the growth rate curves on the graph).
- -continue this investigation as time permits to show more long-range effects.
- -variations of this investigation may be used to show the effects of different amounts of light, water temperature and fertilizer.

52

EVALUATION:

- discuss the results, especially as they relate to proper care of plants.
- discuss the accuracy of the predictions of growth rates that were obtained.

A LESSON PLAN FOR SOIL INVESTIGATIONS IN LAND USE PLANNING

Set the stage for this investigation by reviewing quickly what will take place in the allotted time. For example; In the next four hours, we will develop some skills and apply them to collecting and interpreting data about the soil environment and then apply that data to making some decisions about what the best uses of this land might be. (You might want to read the behavioral objectives at the end of the lesson and refer back to them as an evaluation of the session.)

I. DESCRIBING SOIL

When you first meet the group, have them sit down and do Task A:

TASK A: (5 minutes) work by yourself

Describe in writing your own description of soil.
Keep this description for your own reference at the end of the session.

II. OBSERVING AND RECORDING THINGS IN THE SOIL

Distribute Task B cards and have class work in groups of 3 or 4 and report findings in 15 minutes.

TASK B: (15 minutes) work in small groups

1. Predict what things you will find in the top few inches of this forest floor. List your predictions.
2. Stake out an area 2 or 3 feet square on the forest floor and sift through the top 3 inches of the soil, recording the evidence of plant and animals you observe.

Name or Description of Item in the Soil	Quantity	Possible Effect on Soil

3. The following three terms are used to describe organic matter at the top of the soil - litter, duff, humus. From your study above, complete the following chart:

Term and definition	Describe the Feel	List the identifiable parts of plants and animals you found
Litter (identifiable dead things on surface)		
Duff (partially decomposed organic matter - compacted)		
Humus (almost completely decomposed non-identifiable organic matter)		

Questions and discussion:

1. What did you find?
2. When would you expect to find more organisms? different organisms?
3. How do the organisms you found benefit the soil?
4. What are some reasons for odors in the soil?

III. DEVELOPING THE SKILLS TO COLLECT SOIL DATA

Questions and discussion:

1. Move group around to the soil profile.
2. What can we see as we look at this crossection or profile of soil?
3. What are some things that would be important to find out about it? (accept all comments)

The observable characteristics of color, texture, structure, temperature and the acidity or alkalinity (pH) of a soil are indications of some soil conditions important in land use planning.

We are going to collect and record some of this information. For the next few minutes, we will stay together as a group to develop skills in collecting soil data. After that, you will be working on your own.

Note to instructor: Quickly (10 minutes) go over the techniques for collecting the data with the participants. This instructional session is extremely important. The participants will use the skills they develop in this session when they collect data for the micromonolith.

Examples: (not necessary to discuss in this order)

1. Soil layers (Horizons)
   Mark where the soil changes color and look. Many soils have 3 major layers or horizons, i.e., top soil, subsoil and parent material; because soil formation has many variables you may find more or less. (Measure and record the depth of each major layer).

2. Color
   Describe and record the texture of each major layer.
   (Have participants pick their own description of color.)

3. Texture (How the Soil Feels)
   Determine and record the texture of each major layer.

   Texture is determined by feel (push and rub moistened sample between thumb and forefinger. Spit on sample to moisten.)
   If it feels gritty..... sand
   If it feels smooth and slick, not very sticky..... silt
   If it feels smooth, plastic, very sticky..... clay

   Note: Have samples of sand, silt, clay in cans. Have participants practice with these samples to find out what the textures feel like before determining textures of the soil profile.

4. Structure (How the Soil is Put Together)
   Determine the structure of each major layer. Carefully break apart a shovelful of soil from each layer and match its characteristics with one of the structure words on the lab sheet.

5. Temperature
   Determine and record the temperature of each layer. Plant's growth depends upon soil temperatures during the growing season. Find out your growing season before lesson.

6. pH (Acidity or Alkalinity)
   Determine and record the pH of each major layer. Plants need many soil nutrients to grow well. The degree of pH affects how plants grow.

   Note to instructor: Demonstrate how to use pH kit in front of whole class. Use some foreign material like cigar ashes. Mention not to compact the sample in the procelain dish, just use enough pH reagent to saturate soil sample, match color at the end of the soil sample and porcelain dish with pH color chart.

IV. CONSTRUCTING A SOIL MICROMONOLITH

We are going to use the skills we just developed to construct a soil micromonolith. (Explain: a micromonolith is a small cross section of this profile. You can make one by just sketching the layers on the profile sketch in Task C, or putting samples of each layer in a baby food jar, etc.

Notice there is a place to check or record the data you collect, and a place to sketch what the soil looks like.

TASK C: (20-30 minutes) Work in small groups or by yourself

Using the skills you have just developed, and the available equipment, construct a soil micromonolith of this soil profile.
Record your observations on the soil micromonolith lab sheet.
You may want to make a micromonolith using the cards and jelly cups, if so, ask your instructor.

When finished with this task, report to the instructor to receive TASK D.

Air temperature 3 ft. above soil surface	
Air temperature just above soil surface	

Sketch your soil profile, label the layers or horizons and record the data.

PROFILE SKETCH

DATA

Contents of material above soil:
_____, Depth _____" to
_____".

A. Topsoil (Horizon): Depth _____"
to _____", Color _____
Texture: Sand_____, Silt _____,
Clay_____
Structure: Columns ____,
Blocky _____,
Platey _____,
Granules _____,
pH _____, Temp ____,
_____F, Plant Roots
Visible _____.

Record below the same information above for the rest of the layers.

Describe type of rock in the bedrock (if present)_____

58

V. ANALYZING YOUR SOIL DATA

TASK D: (20-30 minutes) Work in small groups or by yourself.

Use the soil data you collected and the following tables. Answer the following questions:

Effect of Soil Depth on Plant Growth and Water Storage

Deep Soil (over 42")	Excellent water storage and plant growth
Mod. Deep Soil (20"-42")	Good water storage and plant growth
Shallow Soil (20" & under)	Poor Water storage and plant growth

The potential of my soil for water storage and plant growth is:
excellent_____ good_____ poor_____
Why?_____

Some Relationship of Color to Soil Conditions

Top Soil Condition	Dark (dark grey, brown to black)	Moderately Dark (dark brown to yellow-brown)	Light (Pale brown to yellow)
Amount of organic material	Excellent	Good	Low
Erosion factor	Low	Medium	High
Aeration	Excellent	Good	Low
Available Nitrogen	Excellent	Good	Low
Fertility	Excellent	Good	Low

Subsurface Soil Color (B Horizon)	Condition
Dull Grey (if in low rainfall soils)	Water-logged soils, poor aeration
Yellow, red-brown, black (if in forest soils)	Well drained soils
Mottled grey (if in humid soils)	Somewhat poorly to poorly drained soils

a. What can you say about the following, based on the color of the top soil, or A Horizon?
amount of organic material_____
erosion factor_____
fertility_____

b. What can you say about the drainage in the B Horizon, based on color?

_____

Effect of texture on Texture	Water holding capacity	Looseness of soil
Sand	Poor	Good
Silt	Good to excellent	Good
Clay	High (plants can't use it in clay)	Poor

My soil texture Soil water-holding capacity Looseness

Topsoil (A)

Subsoil (B)

Effects of structure of soil conditions

Type	Penetration of water	Drainage	Aeration
Columns	Good	Good vertical	Good
Blocky	Good	Moderate	Moderate
Granular	Good	Best	Best
Platey (low rainfall soils) (like stack of plates)	Moderate	Moderate	Moderate

Using the structures you recorded, and the chart, "Effects of Structure", what can you say about the drainage properties of your soil for:

Topsoil (A)_____

Subsoil (B)_____

1	4.5	6.5	7	8.5	14
(1 to 4.5 is too acid for most plants)		(Most plants do best here)		(8.5 to 14 is too alkaline for most plants)	

Example of plants in pH range:

pH 4.0 - 5.0: rhododendrons, camellias, azaleas, blueberries, fern, spruce

pH 5.0 - 6.0: pines, firs, holly, daphne, spruce, oaks, birch, willow, rhododendron

pH 6.0 - 7.0: maple, mountain ash, pansy, asters, peaches, carrots, lettuce, pines, firs

pH 7.0 - 8.0: beech, mock orange, asparagus, sagebrush

Using the pH ranges you recorded and the table, "Examples of Plants in pH Range", complete the following chart:

Some Plants That Could Grow Here Based on the pH and Chart	Some Plants Actually Observed Growing Here

Did your inferences about the soil pH-plant relationships check out?

Yes_____ No_____ Explain:_____

Describe in a short paragraph how you would set up an experiment to collect date and construct your own soil pH-plant relationship chart.

Soil temperature

Soil Temperature	Conditions during growing season
Less than 40°F	No growth, soil bacteria and fungi not very active
40°F to 65°F	Some growth
65°F to 70°F	Fastest growth
70°F to 85°F	Some growth
Above 85°F	No growth

The growing season for my area is_____

What does the soil temperature chart tell you?_____

In the space below, convert the soil temperature table to a line graph. (5-10 min.) (Work by yourself.

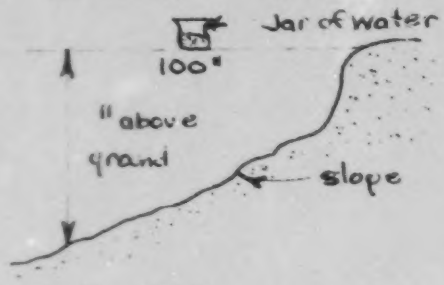
VI. DETERMINING SOME LAND USES

Questions and discussion: We have all the information we need except the slope of the land, to discuss some land uses here.

TASK E

Determining the Slope of the Land

1. Select a place that represents the average slope of the land being studied or take several measurements and average them.
2. Place one end of a 100" stock on the slope you want to measure. Hold outright to be about level.
3. Place a level or jar with some liquid in it on the outright stock. Raise or lower the stock until level.
4. Measure the number of inches the free end of the stock is off the ground.
5. The number of inches is the slope of the land in per cent.



If you use a different length stock, then correct by using the conversion table below.

Conversion Table

Length Stick Used	No. inches the end of the stick is above the ground	Multiply by conversion factor		% Land
100"	_____	1	=	
50"	_____	2	=	
25"	_____	4	=	

Land Use Chart

This is a chart for soils in one kind of land, climate and plants. Other areas may require a different set of criteria.

Agriculture Uses	Slope	Erosion Hazard	Soil Depth	Drainage	Texture
Farm crops-cultivation good soil mngmt. practices	0-3	None	Deep	Well Drained	Loam or silt loam
Farm crops-few to several special cultivation practices	3-20	Slight to moderate	Mod. deep	Somewhat poorly	Sandy loam or silty clay
Occasional cultivation many special practices	20-30	Severe	Shallow	Poor	Sand or clay
Pasture-woodland cultivation, no machinery can be used	0-2	None to slight	Deep	Well to Poor	Stoney
Pasture, timber growing, woodland, wildlife, no cultivation machinery	30-90	Very severe	Deep to shallow	Well to poor	Sandy, silty, claying or rocky
Wildlife, recreation	all	None to extreme	Deep to shallow	Excessive to poor	Rockland, river wash, sand dunes

The most limiting soil factor will determine the best agricultural use of the land.

Occupancy land uses by man--

Man's valued uses of land has demanded criteria, in addition to agricultural uses, to determine proper management practices for living on the land. (Examples of others include: prescriptions for aesthetic management, soil site indexes for growing timber, criteria for greenbelts, etc.)

Some Uses & Factors Affecting That Use	Slight Limitation	Moderate Limitation	Severe Limitation
Roads and Streets			
Slopes	0-12%	12-30%	Over 30%
Depth	Over 40"	20-40"	Less than 20"
Watertable	Over 20"	10-20"	Less than 10"
Building Sites			
Slopes	0-12%	20-20%	Over 20%
Depth	Over 40"	20-40"	Less than 20"
Watertable	Over 30"	20-30"	Less than 20"
Septic Tank Filter Fields			
Slope	0-7%	7-12%	Over 12%
Depth	Over 6'	4-6'	Less than 4'
Watertable depth below trench	Over 4'	2-4'	Less than 2'

Picnic and Camp Areas			
Slope	0-7%	7-15%	Over 15%
Stones	0-20%	20-50%	Over 50%
Watertable during season of use	Over 30"	20-30"	Less than 20"

TASK F: (20 minutes) work in small groups

Using the data from Task D, Task E, and the Land Use Chart, answer the following questions:

According to the agriculture and occupancy land use charts, this land could be used for:

Agriculture use: (list and explain why)

Occupancy: (yes or no and with what limitations)

Roads and streets

Building sites

Septic tank filter fields

Picnic and camp areas

I feel the best uses of this land would be: (justify your answer)

Questions and discussion:

1. How have you classified this land?
2. Based on your observations and the data you collected, do you feel this land is being properly used?
3. In your estimation, have man's activities affected the classification of this land?
4. Could man improve the capability of this area? How?
5. How could man reduce the capability of this area?

TASK G: (10 minutes) Work by yourself

Using the words from the data you collected and recorded on the soil micromonolith card, wirte a description of the soil in your soil study. Compare this description with the one you wrote at the beginning of the session.

Questions and discussion:

1. What are some factors that contribute to soil formation?
2. What evidences of geological changes have you noticed in this area?
3. What other factors might affect uses of the use? (climate, growing season, needs of community, economic, past history of uses, etc.)

VII: COMMUNICATING FEELINGS, AWARENESS, AND VALUES ABOUT SOIL

TASK H: (10 minutes)

Describe what you can do to improve the use of the soil: in your backyard.
in your community.

Ask for invididual descriptions and have group discuss. Relate back to comments to questions after TASK F.

What types of community action can we take to identify and help solve soil and land management problems in our community? How do these relate to zoning laws, planning commissions, local and state political discussion-making?

SUMMARY QUESTIONS

1. What did we find out about the environment in our study today?
2. How are soil characteristics important in environmental management?
3. How can we summarize our discussions and investigations?
4. What processes and methods did we use in our investigation today?
5. Let's review the behavioral outcomes for this session to see if we achieved our objectives. (Read list and have group comment.)

   (Point out that the evaluation and testing was built into the task-oriented jobs that demanded the learner to do something.)

TASK I:

Describe in writing how you feel about our session today. (Evaluation)

BEHAVIORAL OUTCOMES IN KNOWLEDGE

As a result of these activities, you should be able to:

Describe 3 ways in which the living organisms in the top part of the soil affect the soil.

Construct a soil micromonolith of an assigned soil profile, determine and record texture, structure, pH, temperature, and color of each layer.

Construct a written description of a soil you studied, using the words you recorded about that soil on your micromonolith.

Demonstrate the ability to determine the best uses of the land in this area, using the data from your soil micromonolith and the land capability charts.

Describe 3 things that man does to determine the proper management of the soil resource.

BEHAVIORAL OUTCOMES IN FEELINGS, AWARENESS, VALUES AND ACTION

As a result of these activities, you should be able to:

Describe how you feel about man's effect on this soil environment.
Describe how you feel about man's effect on the soil environment where you live.

Describe what you can do to improve the use of the soil:
in your backyard:
in your community:

EQUIPMENT NEEDED: (for a class of 30 people)

6 Le Motte soil pH kits	100 jelly cups and lids	3 staplers
30 micromonolith cards	3 soil thermometers	1 box staples
6 tape measures	2 #10 cans of water	2 shovels
30 sets of lab sheets	30 hand lenses	3 yardsticks
3 stocks (50" or 100" long)	3 baby food jars, ½-full of water	

labels to differentiate soil horizons

This lesson plan was developed for use in teacher workshops by:
Phyllis Enger, Seattle, Washington
Dave Kennedy, Olympia, Washington
Don Cannard, Vancouver, Washington
Ernie McDonald, Portland, Oregon
George Otte, Willsboro, Oregon

The lesson plan was revised in November 1971. It is suggested by the writers that continuous revision take place by people who use the ideas.

(One per student)

KEY TO THE MORE IMPORTANT IOWA TREES

Prepared by Pauline L. Sauer

1a. Trees with needle-, scale-, or awl-like leaves
- 2a. Leaves needle-like
  - 3a. Needles in bundles or tufts
    - 4a. 2-5 needles per bundle (pines)
      - 5a. 5 needles per bundle — White pine
      - 5b. Fewer than 5 needles per bundle
        - 6a. 2-3 needles per bundle, stout, dark yellow-green 5-11 inches long — Western yellow pine
        - 6b. 2 needles per bundle
          - 7a. Needles over 3" long
            - 8a. Needles 4-6" long, flexible, slender, straight, from sheath ½-1½" long — Norway (red) pine
            - 8b. Needles 3-5" long, stiff, stout, incurved, from sheath about ½" long — Austrian (black) pine
          - 7b. Needles 3" or under
            - 9a. Needles 2-3" long, flat, twisted — Scotch pine
            - 9b. Needles ½-1½" long, thick, spreading — Jack pine
    - 4b. Needles in tufts of 10 or more on short, stout lateral shoots; needles flat, slender, pale green, about 1" long, dropping in autumn — Tamarack (larch)
  - 3b. Needles borne singly along the twig
    - 10a. Needles flat, flexible
      - 11a. Needles with two white lines on lower surfaces, cones drooping
        - 12a. Needles stalked, ½" long, leaving twigs rough after falling; cones about 3/4" long — Hemlock
        - 12b. Needles narrowed at base, 3/4-1½" long, cones 2-4½" long with 3-pointed bracts — Douglas fir
      - 11b. Needles without two white lines on lower surface, leaving flat circular scars on twig after falling; cones upright
        - 13a. Needles ½-3/4" long, crowded, silvery beneath — Balsam fir
        - 13b. Needles mostly 1½" long, not crowded, pale green or silvery — White fir
    - 10b. Needles 4-sided, stiff, leaving twig rough after falling, cones drooping (spruces)
      - 14a. Twigs drooping; needles ½-1" long, stiff, dark green; cones 5-7" long — Norway spruce
      - 14b. Twigs not drooping
        - 15a. Needles 1/3-1" long, pointed but not sharp, whitish green; cones to 2" long — White spruce
        - 15b. Needles to 1½" long, stiff and sharp-pointed, light gray-blue; cones to 4" long — Colorado blue spruce
  - 2b. Leaves scale-like or awl-like (cedars)
    - 16a. Leaves all scale-like, flat; twig appearing as if pressed; fruit a small cone — White cedar (arbor vitae)
    - 16b. Leaves often of 2 kinds on the same plant, some overlapping and scale-like, others spreading and awl-like; fruit berry-like, blue-gray — Red cedar (juniper)
- 1b. Leaves broad and flat
  - 17a. Leaves fan-shaped, usually 2-lobed, usually clustered on short stout, spur-like shoots — Ginkgo
  - 17b. Leaves not fan-shaped nor 2-lobed
    - 18a. Leaves whorled, 3 at a node, blades 5-12" long, heart shaped, pointed — Catalpa
    - 18b. Leaves not whorled

(One per student)

19a. Leaves opposite, 2 per node
- 20a. Leaves simple, lobed; fruit a 2-winged samara (maples)
  - 21a. Leaf notches round (hard maples)
    - 22a. Leaves 3-5 lobed, thin, green above, paler beneath; wings of fruit almost parallel or slightly spreading — Sugar maple
    - 22b. Leaves 5-7 lobed, thick, deep green above and beneath, with milky juice, hair-like tips on lobes; wings of fruit spreading in almost a straight line — Norway maple
  - 21b. Leaf notches acute, margin much-toothed, leaf silvery beneath (soft maples)
    - 23a. Leaf lobes 3-5, short and broad; notches shallow, broad — Red maple
    - 23b. Leaf lobes 5, long and slender; notches deep, narrow — Silver maple
- 20b. Leaves compound
  - 24a. Leaves pinnately compound
    - 25a. 3-5 leaflets, irregularly shaped — Boxelder
    - 25b. 5-11 leaflets, all similarly shaped (ashes)
      - 26a. Leaflets 7-11, not stalked — Black ash
      - 26b. Leaflets 5-9, stalked
        - 27a. Leaflet margins only slightly and sparsely toothed — White ash
        - 27b. Leaflet margins noticeably toothed — Green ash
  - 24b. Leaves palmately compound
    - 28a. Leaflets usually 5, light green, broadest at middle, tapering at both ends — Ohio Buckeye
    - 28b. Leaflets usually 7, dark green, broadest near the tip — Horse chestnut

19b. Leaves alternate, 1 per node
- 29a. Leaves compound
  - 30a. Some leaves bipinnately compound (legumes)
    - 31a. Leaflets rounded at tips, 3/4-1½" long; trees often with branched thorns — Honey locust
    - 31b. Leaflets pointed at tips, 2-2½" long; trees thornless — Kentucky coffeetree
  - 30b. All leaves once pinnately compound
    - 32a. Leaflets 5-11, terminal ones conspicuously larger than others (hickories)
      - 33a. Peticle smooth; leaflets usually 5 (5-7); bark shaggy — Shagbark hickory
      - 33b. Peticle hairy; leaflets usually 9 (7-13); bark smooth — Bitternut hickory
    - 32b. Leaflets 11-23, all about the same size
- 34a. Leaflets even; twigs with paired thick short spines — Black locust
- 34b. Leaflets toothed; twigs without spines or thorns
  - 35a. Leaflets toothed only near the base; leaf base swollen and exuding milky joice when picked; crushed leaflet rank smelling — Ailanthus
  - 35b. Leaflets toothed throughout
    - 36a. Leaflet tips bluntly pointed, teeth very regular, leaflets dull green above, woolly below; fruit a cluster of scarlet berries — European mountainash
    - 36b. Leaflet tips acute; twigs with chambered pith; fruit a nut (walnuts)
      - 37a. Leaflets 11-17, downy, especially beneath; fruit an oblong, clammy, pointed nut; pith chocolate-colored — Butternut
      - 37b. Leaflets 13-25, terminal one often missing, smooth above, very slightly downy beneath; fruit a globular, roughly dotted nut; pith cream-colored — Black walnut
- 29b. Leaves simple

(One per student)

38a. Leaf margin even and unlobed
- 39a. Leaves broadly heart-shaped — Redbud
- 39b. Leaves longer than broad
  - 40a. Leaves silvery — Russian olive
  - 40b. Leaves not silvery
    - 41a. Leaves ovate; stout spine on twig at base of leaft; fruit size of orange, green — Osage orange
    - 41b. Leaves not ovate, 4-6" long, green above, pale downy beneath; leaves with stout, hairy petioles; furit an acorn — Shingle oak

38b. Leaf margin wavy, lobed, or toothed
- 42a. Leaf margin coarsely wavy to lobed
  - 43a. Leaf margins coarsely wavy
    - 44a. Leaves obovate, base wedge-shaped, leathery green above, whitish downy beneath; bark on young branches with curling scales — Swamp white oak
    - 44b. Leaves ovate, shiny dark green above, densely white downy beneath — White poplar
  - 43b. Leaf margin definitely lobed
    - 45a. Leaves about as broad as long
      - 46a. Leaf lobes rounded; leaves dark green above, densely white woolly beneath; tree columnar — White poplar
      - 46b. Leaf lobes pointed; leaves not densely woolly beneath
        - 47a. Terminal lobe rather square but indented — Tulip-tree
        - 47b. Terminal lobe tapering acute
          - 48a. Leaf lobes shallow; entire lower surface or leaf scurfy-downy below till old; older bark on upper part of tree pulling away revealing greenish or whitish inner bark — Sycamore
          - 48b. Leaf lobes deep, more than half-way to midvein; twigs with clustered terminal buds; fruit an acorn — Pin oak
    - 45b. Leaves longer than broad
      - 49a. Leaves somewhat triangular in outline, toothed; twigs drooping — Weeping birch
      - 49b. Leaves not triangular in outline
        - 50a. Twigs without clustered terminal buds (mulberries)
          - 51a. Leaves smooth or rough above, somewhat downy beneath — Red mulberry
          - 51b. Leaves glossy above, nearly smooth beneath — White mulberry
        - 50b. Twigs with clustered terminal buds; fruit an acorn (Oaks)
          - 52a. Leaf lobes rounded (white oaks)
            - 53a. Leaf notches shallow, less than ½ way to midvein — Swamp white oak
            - 53b. Some or all of leaf notches deep, more than ½ way to midvein
  - 54a. Leaf notches usually all deep and somewhat similar in size and shape — White oak
  - 54b. Some leaves with only 1 pair of very deep and wide notches, almost to the midvein; notches above and below shallower — Bur oak
          - 52b. Leaf lobes bristle-pointed (red or black oaks)
  - 55a. Leaf notches shallow, usually less than ½ way to midvein
    - 56a. Leaf not hairy below, thin, dull green above; acorn with broad shallow cup — Red oak
    - 56b. Leaf soft-hairy below; thick, leathery, glossy above; acorn cup covering about ½ of nut — Black oak
  - 55b. Leaf notches deep, more than ½ way to midvein — Pin oak
- 42b. Leaf margin toothed

(One per student)

57a. Tree with thorns or thorn-like stunted twigs
- 58a. Thorns smooth, tapering, sharp; twigs gray; leaf veins straight — Hawthorne
- 58b. Thorns more like stunted twigs
  - 59a. Leaf veins straight — Wild crab
  - 59b. Leaf veins curved, strongly so near margin, prominent on both sides of leaf; raised light spots on twigs — Wild plum

57b. Trees thornless
- 60a. Leaf base usually decidely lopsided
  - 61a. Leaves broadly heart-shaped — Basswood (linden)
  - 61b. Leaves not broadly heart-shaped
    - 62a. Leaves lanceolate, base untoothed — Hackberry
    - 62b. Leaves ovate
      - 63a. Leaves 1-3" long — Chinese elm
      - 63b. Leaves 3-6" long
        - 64a. Branches with corky ridges — Cork Elm
        - 64b. Branches without corky ridges
          - 65a. Leaves very harsh and rough on both surfaces — Slippery (red) elm
          - 65b. Leaves somewhat rough above, smooth or hairy below — American (white) elm
- 60b. Leaf base usually essentially symmetrical
  - 66a. Leaves long, narrow, usually several times as long as broad, with bitter quinine taste when chewed; twigs slender, shiny, flexible — Willows
  - 66b. Leaves broader
    - 67a. Petiole flattened at right angles to leaf blade (poplars)
      - 68a. Leaves ovate to circular (aspens)
        - 69a. Leaves 2-4" long, circular, finely toothed — Trembling aspen
        - 69b. Leaves 3-5" long, ovate to circular, coarsely toothed (about 9 teeth on each side) — Large-toothed aspen
      - 68b. Leaves triangular (poplars)
        - 70a. Marginal teeth not conspicuously incurved, fine throughout — Lombardy poplar
        - 70b. Marginal teeth conspicuously incurved, larger near base — Cottonwood
    - 67b. Petiole approximately circular
      - 71a. Leaf veins straight
        - 72a. Only one marginal tooth per vein — Chestnut
        - 72b. Several marginal teeth per vein; trees with shreddy or peeling bark
          - 73a. Bark shreddy with ½" almost vertical strips; leaves thin and papery, leaf base heart-shaped — Ironwood
          - 73b. Bark peeling horizontally
            - 74a. Bark white — White (paper, canoe) birch
            - 74b. Bark bronze, peeling in thin, glistening curls; twigs with wintergreen flavor — Yellow birch
      - 71b. Leaf veins curved
        - 75a. Leaves with milkyjjuice
          - 76a. Leaves smooth or rough above, somewhat downy beneath — Red mulberry
          - 76b. Leaves glossy above, nearly smooth beneath — White mulberry
        - 75b. Leaves without milky juice

77a. Smooth dark twigs with light-colored horizontal raised dots (cherries)

78a. Widest part of leaves 1/3 way from tip; teeth flare outward slightly — Choke cherry

78b. Leaves widest near center, tapering at both ends, teeth incurved

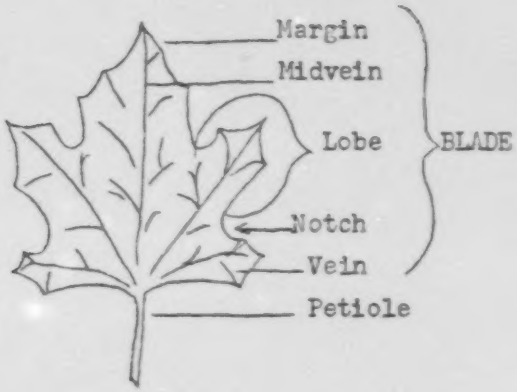
79a. Twigs white-dotted, pith brown — Black cherry

79b. Twigs brownish-dotted, pith white, twig bright red — Pin cherry

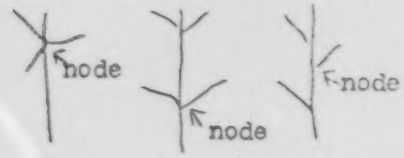
77b. Twigs without light-colored raised dots; leaves large, ovate, fragrant, smooth-petioled, bright green above, whitish beneath — Balsam poplar

TERMS USED IN TREE KEY

Diagram of a leaf:



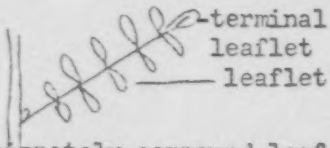
Leaf arrangement:



whorled opposite alternate

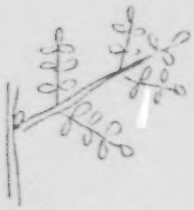
Simple and compound leaves:

SIMPLE LEAF (note bud at base of leaf)



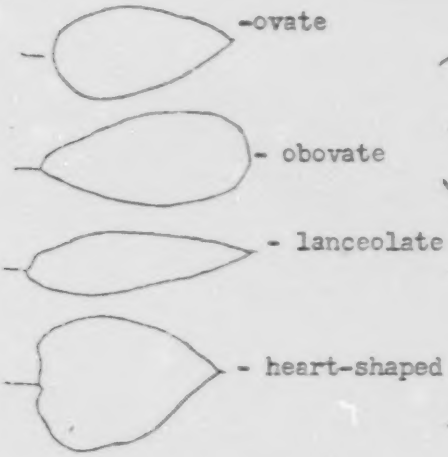
pinnately compound leaf (note bud at base of leaf)

Palmately compound leaf (note bud)

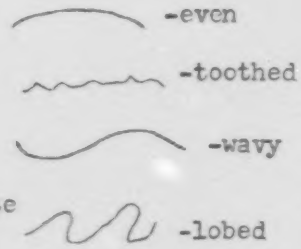


Bipinnately compound leaf (note bud)

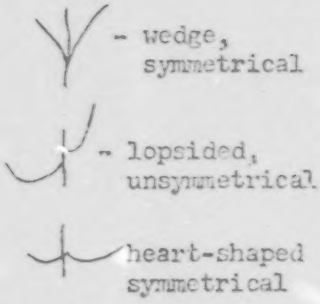
LEAF SHAPES:



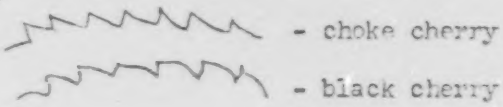
MARGINS:



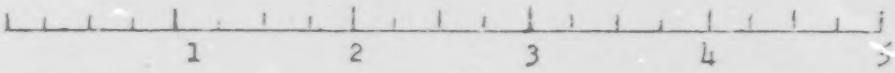
BASES:



CHERRY LEAF MARGINS:



CHAMBERED PITH:



INCHES

For two years, the following project has been implemented as extra-curricular at Kurtz Junior High. It could be incorporated into the secondary curriculum or replace an existing unit. Many modifications are also possible to meet individual classrooms, teachers, and students.

Included are:

1. How this project was initiated
2. A list of activities involving students
3. Interdepartmental co-operation
4. Sample order blanks

The implications for careers are numerous and varied, including:

1. Farmer
2. Nursery management
3. Interior decorator
4. Home gardening

PLANT PROJECT REPORT FOR KURTZ JUNIOR HIGH SCHOOL

8TH GRADE SCIENCE REPORT

submitted by Mrs. Frieda Griffin

A plastic covered tent on a wood frame was placed on three tables bolted together - total area - 24 square feet - this was lighted with a four tube flourescent light and two red incandescent bulbs.

In late January, stem cuttings were taken from plants already in classrooms at Kurtz and placed in the greenhouse for rooting. When these were ready for planting, they were made available to the faculty free of charge if they would bring their own containers and pay for the potting soil.

When students finished their physical science labs, they would assist in a variety of responsibilities.

As more plants were available, students wanted them, also, so we began charging a nominal fee of 25¢ per plant - the interest was fantastic - within a month, it became evident we needed more room. One class of students went through catalogs to obtain prices on various types of lighted plant shelves - cost was a factor so the students obtained permission from the principal to expand the project and grow tomatoes, peppers and geraniums for their parents and take orders for these. The success of the project and the enthusiasm of the students far exceeded anyone's expectations.

The following activities were carried out by students:

1. A science notebook was ruled and established as a financial record of all transactions.

2. All financial transactions were recorded and kept current by students.

3. Orders were recorded and numbered by two students in each class as they were received.

4. Seed medium mixed.

5. Potting soil mixed.

6. Seeds planted.

7. Pots washed.

8. Styrofaom cups perforated for draining.

9. Trays lined for placement of transplanted plants.

10. All trays labelled.

11. Daily watering.

12. Planting scoops made out of detergent bottles.

13. Orange juice glasses from cafeteria washed and perforated for planting.

14. Card board boxes cut off for plant trays.

15. Ice cream sticks washed for plant labelling and price markers.

16. 1/2 pint milk cartons washed and cut off and perforated for planting containers.

17. Plants carried to and from the roof daily for "hardening".

18. Orders filled by numerical order in which they arrived.

19. Orders cross-indexed and alphabetized so customers could know their number immediately.

20. Made posters for advertising.

21. Built storage shelves.

22. Made labelling signs and directions for mixing potting soil and placed in the "dirt room" so anyone could mix potting soil any time without supervision.

23. Made bulletin board.

24. Ran the market days and totalled all orders.

25. Kept a current financial standing on the board daily so progress was a public reality.

26. Set up Mothers' Day Sale displays in various parts of the building.

27. Took care of plants in various parts of the building.

28. Made deliveries.

29. Cleaned, cleaned, and cleaned.

There were also students who contacted merchants and received donations of wicker baskets which were made into hanging baskets and sold.

The Art Department gave the Science Department a tremendous assist by making terrariums with bottles donated by many different people and some of the plants donated and some furnished by the Science Department. Profits from the terrariums were added to the Plant Project.

The co-operation of the administration, the entire faculty and the entire student body has been exceptional. Student volunteer help both before and after school was an important factor in getting all the jobs finished on schedule.

This was not a full-time class project. Not more than seven full school days were used - all other work was done by students as they finished their physical science labs and had time remaining in a period. (This project has been the most motivating factor I have ever experienced in terms of students having a high level of desire to complete their regular classwork.)

A survey of all adults attending the market days shows 100% want the project carried on again next year.

No student has expressed, to me, any negative reaction to the entire project. Even one boy with a severe allergy still wants to stay in the classroom.

We filled 145 orders and I would estimate that since February 1, 1974, to date, May 20, we have probably sold approximately four thousand plants.

There was at least equal interest between boys and girls. If the interest was weighted at all, it would be my opinion that the boys' interest was slightly higher than the girls.

When the students began taking orders, we were already in debt -- at one time the debt was $131.00. Our goal was to earn $300.00 to get the shelf the students wanted. As of today, May 20, our present financial standing is:

Total Expenditures	$ 852.05
Total Income	1237.36
Total Profit	$ 385.31

The profit listed is monies remaining after the shelf ($345.60) is paid for and in use. Since we now have monies on hand and can order soil supplies in bulk quantities, we have been offered a 20% discount so we will be buying some soil supplies for next year, probably within the coming week.

Your order number is _____

You ordered _____ tomatoes

Would you indicate your choice of varieties in any combination you wish, you may increase the size of the order if you like as we have planted extra.

_____ Rutgers - medium-late, very meaty type tomato

_____ Hines - very popular canning tomato

_____ Big Boy Hybrid - semi-early

_____ Marglobe - medium early

_____ Earliana - early tomato

_____ Tiny Tim - small cherry salad tomato, suitable for garden or pario pot

_____ Sub arctic - very early small cherry salad tomato

_____ Yellow pear tomato - a yellow very meaty tomato

_____ Variety of other hybrids

- -

DETACH AND RETURN ABOVE PORTION ONLY

If you ordered peppers or geraniums, you need not make a variety selection. Please return this immediately to make our work easier. Our selection of other plants increases each day.

We are looking forward to seeing you when you pick up your plants on Market Days. We will have the Market open from 8:00 a.m. through 6:00 p.m. on May 14 and May 15. There will be signs directing you to room 203 and students to carry out your plants for you and to give you information on the progress of our project.

Please bring visitors who have not placed previous orders, we would like to make as many people as possible aware of this fine project by our Kurtz students, and we plan to have plenty of extra plants.

Thank you for your cooperation.

Sincerely,

Mrs. Griffin and Students

TO INTERESTED PARTIES:

In addition to the regular Physical Science course being offered to 8th grade students at Kurtz Junior High, Mrs. Griffin and the second semester science students have been operating a small indoor greenhouse. The interest in this project has been tremendous. The student work has been volunteer and our supplies limited.

We would like to add a large tiered, lighted shelf to our science department, and we feel we could easily do this with funds obtained by selling plants to parents.

Since our space is limited, we would need to have your orders by March 25. In the event of large numbers of orders, we would have to fill these in the order in which they arrive.

We will sell individually potted plants. These plants will be started in seed trays and then transplanted to individual containers, ready to plant outdoors. We will have the plants ready by May 15th.

We would use old pots if you have any you do not want - any type or size for planting - they do not have to be clean - we have good help here!!

1. A variety of tomato plants at 25¢ each
2. Green sweet peppers - 25¢ each
3. Geraniums - 25¢ each

There will be a limited supply of other plants - some house plants, some bedding plants and some plants suitable for gifts. We welcome visitors, so if you have personal inquiries, visit us in room 203 anytime between 8:00 a.m. and 4:00 p.m. or send inquiries by way of students. Please do not call the office, since the office staff would probably not be able to answer your questions concerning supplies on hand.

More detailed information will be given out later regarding different varieties, but for now if you would complete the blank below with just the number of each of the plants, it will be a help to us.

Mrs. Griffin and Students

- -

Plants	Number of each	Price
Tomatoes	_____	25¢ each
Green sweet peppers	_____	25¢ each
Geraniums	_____	25¢ each

_____
Signature

79 34jj

APPENDIX

80

CODE NUMBER	ACTIVITY	RESOURCE
C-29	Living History Farms	Chet Randolph 278-8936 charge - 2 hours
C-30	Truck gardening	
A-31 B-31	Soil Conservation Service Federal Building	Des Moines - Lynn Betts 284-4260 Ankeny - Bill Mills 964-1883
C-32 D-32	Pioneer Seed Corn Company Test Pilot Site	Jack Wallace - 288-3691
A-33 B-33	HyLine Hatchery Research, (no tours due to disease restrictions) Office Management (no direct reference to Science)	Dr. Bob Hawes - 276-1517 Mrs. Shirley Harty 288-3691
B-34	Diamond Laboratory Research and job possibilities, no tours due to disease restrictions	Chet Daringer - 262-9341
A-35 C-35	Brown's Wood	Polk County Conservation Comm. (Jester Park) Charles Spain (Callanan) John Snider (Franklin)
C-36	Gray's Lake	John Snider (Franklin)

CODE NUMBER	ACTIVITY	RESOURCE
C-37	Sailorville Project (Corps of Engineers)	LeRoy Corey - 276-4245
C-38	Ewing Park: Children's Forest	Self-guided
C-39	Waterworks: Water Treatment Plant Small groups -- up to 30 - 1 hour	Bill Boller - Chief Chemist Bob Treon - 288-2281
C-40	Nature Field Trip	Des Moines Chapter of American Association of University Women - Mrs. Majors
C-41	Des Moines Sewage Treatment Plant, S. E. 30th and Vandalla Road, Small groups (max. 25) 1 hour	Steve Modrick - 283-4981
B-42	Iowa Power and Light Energy Crisis, Career Opportunities in Iowa Power and Light	Gene Young - 281-2900
C-42	Plant #2, Small Group, 2 hours	Donna Elmore - 281-2757
C-43	Iowa State Conservation Camp - Springbrook S.P. near Guthrie Center, available for overnight use, fee	Curtis G. Powell Director of Conservation Center, R # 1, Box 138C Guthrie Center, Ia 50115
C-44	Fossil Collecting: Pella, Iowa Paleozoic Brachiopods, Crinoids, Corral, cycads, and some encrusted FeS	1 mile south of Pella across from the old city dump - best to inquire in town.

CODE NUMBER	ACTIVITY	RESOURCE
C-45	Glacial Activity: Mitchelville Morraines and erratics can be viewed along with good collecting of igneous and metamorphic specimens	Take Interstate 80 to Mitchelville access, go north over the interstate on a gravel road (approximately 3 miles).
C-46	Iowa State Historical Building	
C-47	Des Moines City Greenhouse, tour--45 minutes	Mr. Dickinson - 283-4148
B-48	Mid-Continent Bottlers (solid waste management) no tours	Speaker: Dale Richardson 266-1103
B-49 C-49	Metropolitan Solid Waste Agency	Ralph Porter - site speaker with slides
C-50	New Land Use Condominiums	
B-51 C-51	Audubon Society - Fall and Christmas Bird Counts	Sylvan Runkel, President 276-5752; Mrs. Dwight Brooke, 255-1300; Mr. Oliver Graves - 266-5221.
D-52	Iowa Aeronautics Commission	285-1551, Information available for Teachers (excellent films)
C-53	Des Moines Airport	283-4255, Contact Manager

CODE NUMBER	ACTIVITY	RESOURCE
C-54	Stevens State Forest, near Leon, Iowa Requires the whole day, but is an excellent opportunity to observe forest management and take part in some actual planning.	
C-55	Dairy Farming	
C-56	Hog Feed Lots	
C-57	Beef Feed Lots	
A-66 C-66	Bookey Packing Plant	
B-58 C-58	City Engineer, East 1st and Locust	283-4931
C-67	J.C. White - General Contractors may have interesting sites in progress	Dispatcher: Ed Herr, 255-1126
A-59	Hach Chemical Company, (water analysis) Test water samples	P.O. Box 907 Ames, Iowa 50010
A-60 B-60 C-60	Drake University	Dr. Leland Johnson
B-61	City Forester	Ray Bair

CODE NUMBER	ACTIVITY	RESOURCE
B-62	Iowa State Conservation Commission	Valley Bank - 300 Walnut 9th floor, printed materials
B-63 C-63	Chuck Spain, Callanan Jr. High	Noted Forester, Conservationist, and earth Scientist
C-64	United Brick and Tile, Adel, small groups	Lawrence Newman, 993-3744 Plant supervisor
C-65	Goodwin Tile and Brick, small groups (max. 25)	Dominic Caligiouri, 243-3257
A-68 C-68	Hawkeye Pallet Company, 6055 NW Beaver, Johnston	276-0409
A-69 C-69	Iowa Lumber (adjacent to Hawkeye Pallet) Interesting information about Iowa woods	Richard Haller, 276-2864
A-70 B-70 C-70	State Horticulture Society	Corwin Hicks, 281-5402
A-71 C-71	Goode Greenhouse, 1050 NE 50th Ave., north of Interstate, tours--$\frac{1}{2}$ to 1 hour long	Mr. & Mrs. Joe Goode 262-6504
A-72 B-72 C-72	Garden Clubs of America	Mrs. Paula Brown, 279-6115
A-73 B-73 C-73	Heard Gardens, 5355 Merle Hay Road	276-4533

CODE NUMBER	ACTIVITY	RESOURCE
A-74 B-74	Meredith Publishing, no tours	Speaker: George Grams 284-9011
B-75	Jon Crosse Associates, 3116½ Ingersoll Avenue	277-6758
A-76 C-76	Hoskins Landscaping, 2401 Harding Road small groups, may have interesting projects in progress -- on site information	277-6243
B-77 C-77	Excellent mineral collection and good speaker about collecting and the Iowa Mineral Society	Mr. Vern Horch, 277-8781, 6560 Colby
B-78 D-78	Sierra Club, 115 S.W. 8th, 288-0408 Chairman: Claude Gillam -277-6718 printed materials, 1050 Mills Tower 220 Bush Street, San Francisco, California 94104	Speaker: Larry Ladon 288-0408
A-79 B-79 C-79 D-79	State Conservation Commission other departments: Fisheries, Fish and Game, Forestry, Parks, Waters and Boating, Wildlife, Education and Planning	281-5145, Lloyd Huff, Conservation officer
B-80 C-80 D-80	Izack Walton League, 4343 Valley Drive	244-3773 or 288-9146

CODE NUMBER	ACTIVITY	RESOURCE
A-81 B-81 C-81 D-81	Polk County Extension Service, 210 Walnut	Ober Anderson, 284-4158
B-83 C-83	Des Moines Founders Garden Club	
B-86 C-86	Iowa Conservation Education Council, Inc.	Howard Hughes, 284-4260
B-82 C-82	Organic Gardening	Mrs. Peter Janss, 288-5198
A-84 D-84	Environmental Information Center, Main Library	Mr. Davis, 283-4238 or 283-4101
B-85	Environmental Coordinating Council, Inc. (resource personnel available in areas of legislation, recycling, education, public relations, etc.)	Mrs. Julie Lichtenberger, 255-6455
B-87 C-87	Planning and Zoning Commission, Des Moines, Polk Co., East 1st and Grand	Robert Mickel, 283-4182

87

CODE NUMBER	ACTIVITY	RESOURCE
A-88 B-88 C-88 D-88	Public Health Department, Des Moines, Polk Co., East 1st and Grand	General Information 283-4244
	Bacteriology Lab	Jack Shoop, 283-4993
	Air Pollution Lab	Bill Wyer, 283, 4056
	Safety Director	Mr. Lepedius
	Public Health Nurses' Association	Jan Russell, 283-4145
	Health Clinic & Extern Program	Dr. Ordona, 283-4964
	Health Education and Food Handling	Kenny Rank, 283-4246
	Communicable Disease Control Officer	Kent Forbes, 283-4964
	Rodent and Insect Control	Mr. Grunow, 283-4999
	Environmental Sanitarians	Roger Grunow, 283-4997
	Housing Sanitation	283-4046
B-89 D-89	Planned Parenthood, PAP smears, V. D. Control, Family Planning, Harding and Cottage Grove	288-5711
B-90 C-90	Iowa State Environmental Lab, Lucas State Office Building,	Mr. Ipsen, 281-3045, hygenic lab, meat lab, pesticide control, drug analysis
B-91 C-91	Biologist - Conservationist - Strong Resource Person	Sylvan Runkel, 276-5752
B-92 C-92 D-92	US Fish and Wildlife, Federal Building	Game Management, 284-4125
C-93	Bays Branch Wildlife Management, NE of Panora	Call Biologist in Residence Sites Available: marsh, unpland water

CODE NUMBER	ACTIVITY	RESOURCE
C-94 D-94	US Army Corps of Engineers, Project Office, East 1st and Walnut	284-4021
B-95 C-95 D-95	Iowa Development Commission, 250 Jewett Building	281-3251
B-96 C-96 D-96	Natural Resources Council, Grimes Office Building	281-5914
B-97 C-97 D-97	Iowa State Soil Conservation Department, Grimes Office Building	281-5851
C-98	Red Rock Refuge, water fowl refuge	
C-99	Chichauqua County Park, Bonderant, Water fowl management	967-2596
C-100	Controlled Water level and vegetation, no residence on the site	Marsh Henderson, near Collins
C-101	Ledges State Park, State Game Farm, Living Wildlife Display	Wildlife unit manager on site
B-111 C-111	Nixon Feed, Plant Tours - 10 students per group	Warren Jenkins, 262-8218

ENRICHMENT UNIT 2 - Water For The City

The purpose of this exercise is to aquaint you with the concept of the local water budget. Learning how to organize certain data given will enable you to account for moisture income, storage and outgo at a particular area. In order to accomplish this goal we will first use as an example data concerning Houston, Texas and then follow the inentical steps to learn about our own area.

There are three steps in each part of this exercise. They are A) filling in the data table on the attached sheets, B) constructing a graph to visualize the data from the table, and C) interpret the graph by answering a series of questions concerning the graph.

Part I

A. Directions for filling in the top table -

Definition of symbols -

P - precipitation (rain, snow, sleet, hail)

PE - Potential evapotranspiration, this is the amount of moisture that will evaporate from surfaces combined with the moisture given off by plants.

P-PE - difference between P and PE is larger then the result will be a - number

AST - change in the soil moisture storage since the previous month. If water is added this will be a number, if water is withdrawn this will be a number.

ST - soil moisture storage at the end of the month. This cannot be more than 100 or less than 0.

AE - actural evapotranspiration

D - water deficit

S - water surplus

To start the Calculations:

1. Remember numbers are in mm moisture. (There are 25.4 millimeters in one inch.) Scientists use 100mm. as the average storage capacity but could vary depending on soil porosity and other factors.

2. Place the P (percipitation) and PE (potential evaporation) numbers in the proper boxes. (This has already been done for you in the example tables.)

3. Subtract the PE number from the P number and place this difference in the P-PE box. If the P number is smaller than the PE subtract it and indicate the difference by putting a - in front of the number.

4. Add up all the positive P-PE numbers.

   A. If the number is 100 or greater - Put 100 in the ST box for the month before the first negative P-PE value.

   B. If the number is less than 100 - Put whatever that number is in the ST box for the month before the first

5. Start calculations with the first month that shows a negative (-) P-PE number. Example - Since there is 100mm of stored in April when you subtract the -6 for May you now have -6 in the ΔSt box indicating change and only 94 left in the storage (ST). In June you subtract -50 the change)(ΔSt) -50 and now your storage has dropped to 44 (ST). In July when you see the -84 to be subtracted, realize that there is only 44 left stored so that if all the change possible for the ΔST number and the storage (ST) is now 0. Continue the same steps for the other months.

Important to Remember

A. The most you can store (ST) is 100 and least there can be is 0

B. Withdraw from storage (ST) means ΔST is -

C. Deposit to storage means ΔST is +

6. You are now ready to compute the AE or actual evapotranspiration. This number will be equal to the potential in any month where the P number is larger than the PE. In other words, if there is enough rain to evaporate that much moisture. In any month when there is not enough rain PP to evaporate the PE amount, all the rain that falls will evaporate plus any that is stored in the ground (ST). (If none is stored then only the P amount will be evaporated.)

7. The deficit (D) number is the shortage in the soil. This number would 0 anytime the P is larger than the PE. If the PE is larger that the P number the deficit (D) will be the difference between the two.

8. To obtain the S (surplus) it is necessary to look at the amount stored (ST). Anytime 100 is stored then the surplus would be the difference between the P-PE (left over rain). When the storage (ST) is 0 there can be no surplus (S) until the full 100 is stored. Anything left over after

B. Directions for completing the graph:

1. Place P numbers on the graph putting a dot in the center of each month's column. Connect the dots with a colored pencil. Make the January and December lines go up or down whatever the case may be to show that they would be continuous.

2. Repeat the procedure for the PE numbers only connect these dots with a different colored pencil.

3. Label each line at its beginning and end with is letter so you can remember what each line stands for.

4. The recharge markings should be used whenever the P line is higher than the PE until such time that a surplus occurs.

5. The usage markings are to be used whenever the PE line is above the P line until such time that a deficit occurs. In the middle of the deficit month begin using deficit markings.

C. Interpretation:

After completing the graph for the Houston area, answer the following questions.

1. How well does the precipitation pattern match the PE curve through the year?

2. Why is PE so low in January and so high in July?

3. During what months does a water surplus occur? Mark this on your graph.

4. How do you know when to end the water surplus period? What causes the surplus period?

5. When did a period of water deficit begin? Mark this on your graph.

6. During what months is stored moisture drawn from the soil by plants and evaporation?

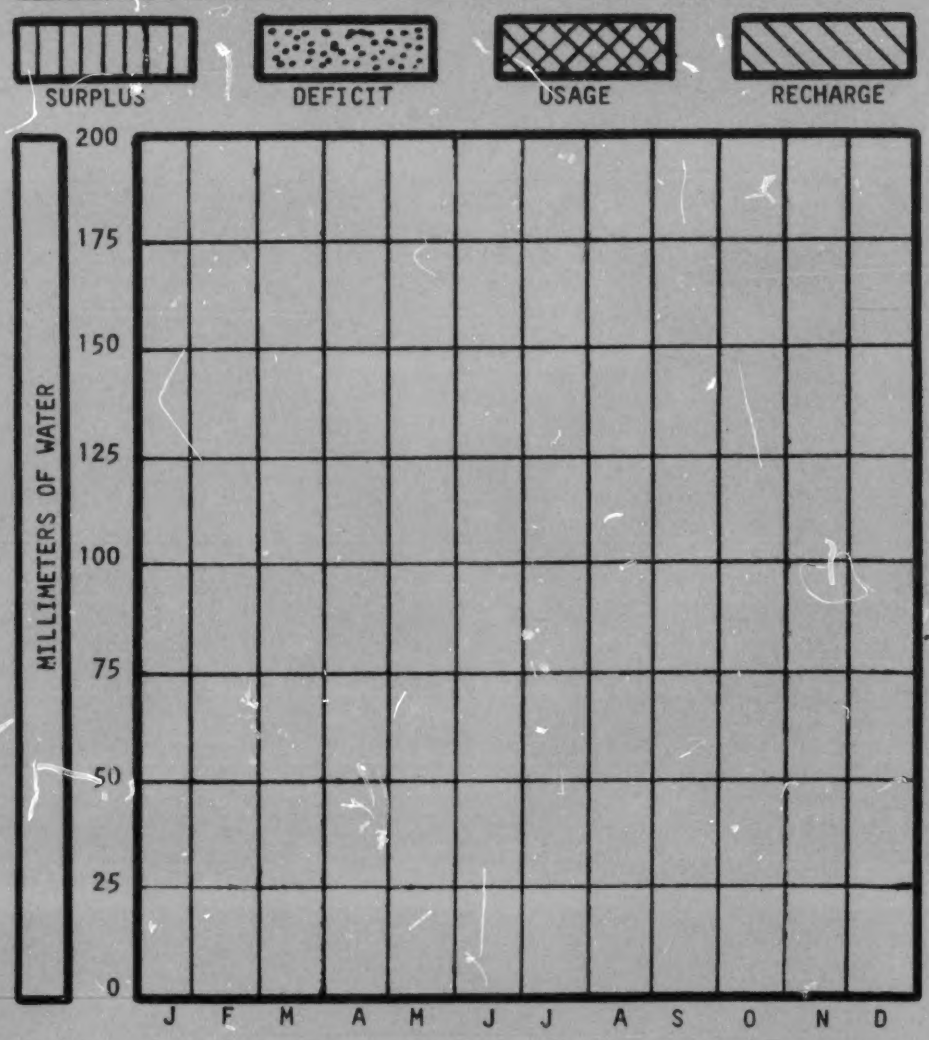
7. During what months would you say that irrigation is most likely to be needed?

Transparency

WATER BUDGET

FOR Houston, Texas

	J	F	M	A	M	J	J	A	S	O	N	D
P	89	75	85	92	119	116	98	99	103	95	89	108
PE	19	23	50	83	125	166	182	172	135	81	39	20
P-PE					-6	-50						
Δ ST					-6	-50						
ST				100	94	44						
AE					125	166						
D					0	0						
S					0	0						



Part II

After completing the information for Houston, Texas, use the data on the attached pages and fill in the top table and construct a graph for the Phoenix, Arizona, area. If time permits, you may want to study some other part of the country. Compare all of your graphs and interpret your findings using the list of questions as a guide.

SUMMARY

Water on the land can be considered in terms of income, storage, and outgo. Precipitation is the important source of income. Its distribution on the earth varies widely and depends on the season and geographic location.

Water reaching the land through precipitation may infiltrate, run off, or evaporate and transpire. Water may be stored on the land in snowfields, ice caps, lakes, and streams. Or water may be stored in the soil as capillary water in the root zone or as gravity water at low levels. Water is removed from the land largely by evapotranspiration. Two-thirds of the precipitation falling on the continents as run off in surface streams and ground water.

The local water budget is a convenient model to account for income, storage, and outgo at a particular place. By the means a value for deficit or surplus may be derived for each month. In adjusting to his environment and altering it for his convenience, man sometimes finds it necessary to change the patterns of water on the land.

Student Study Sheet
(one per student)

United States		J	F	M	A	M	J	J	A	S	O	N	D	
Alexandria,	PE	15	10	45	75	122	164	179	170	129	69	31	15	1032
Louisiana	P	127	133	142	134	119	115	136	106	73	85	111	152	1433
New Orleans,	PE	22	26	49	84	127	168	180	171	139	88	40	24	1118
Louisiana	P	115	117	139	135	124	147	177	153	140	85	92	119	1543
Bangor,	PE	0	0	0	37	84	120	145	127	81	45	12	0	651
Maine	P	81	67	73	38	79	82	67	67	92	85	104	79	964
Portland,	PE	0	0	0	30	69	108	133	115	78	43	17	0	592
Maine	P	101	105	101	88	87	82	80	77	82	82	96	96	1077
Baltimore,	PE	0	3	19	50	96	134	163	142	59	55	20	5	746
Maryland	P	86	81	95	90	93	97	112	114	90	77	72	80	1088
Cumberland,	PE	0	1	13	48	93	128	145	126	89	48	15	2	708
Maryland	P	62	64	75	72	84	102	82	88	69	61	54	64	877
Boston,	PE	0	0	9	37	79	118	142	125	87	51	20	0	668
Massachusetts	P	93	84	90	91	83	81	84	94	81	84	97	88	1058
Pittsfield,	PE	0	0	0	29	77	109	128	112	75	30	9	0	579
Massachusetts	P	79	64	81	91	97	117	127	109	107	74	101	76	1123
Lansing,	PE	0	0	0	34	76	119	135	122	81	46	10	0	623
Michigan	P	46	44	62	71	92	84	70	73	73	65	57	48	786
Sault Ste. Marie,	PE	0	0	0	20	66	101	123	110	75	37	0	0	532
Michigan	P	50	36	44	55	69	75	68	72	91	75	77	57	769
Duluth,	PE	0	0	0	24	66	98	127	113	75	37	0	0	540
Minnesota	P	27	25	39	54	79	103	95	84	80	53	41	27	707
Minneapolis-	PE	0	0	0	37	88	124	149	127	81	39	0	0	645
St. Paul, Minn.	P	20	22	37	52	85	107	89	83	74	49	34	23	675
Jackson,	PE	16	21	40	71	118	159	178	166	124	71	29	15	1008
Mississippi	P	124	124	140	132	112	104	114	88	64	54	91	135	1282
Tupelo,	PE	9	12	34	64	108	152	168	158	115	60	24	10	914
Mississippi	P	114	108	153	116	120	98	98	99	81	65	98	134	1284
Kansas City,	PE	0	0	15	53	96	141	170	152	100	55	15	0	797
Missouri	P	35	39	65	85	94	95	94	100	103	72	47	36	865
St. Louis,	PE	0	0	19	53	100	145	170	152	100	55	18	2	814
Missouri	P	57	60	83	94	105	106	83	76	80	69	67	54	934
Great Falls,	PE	0	0	0	34	74	103	140	121	76	42	7	0	597
Montana	P	17	20	23	26	60	76	22	27	32	19	21	14	368
Miles City,	PE	0	0	0	34	81	113	154	135	78	39	0	0	634
Montana	P	10	10	15	27	50	80	36	33	27	23	11	8	330
Missoula	PE	0	0	9	41	74	103	136	117	72	33	2	0	587
Montana	P	25	22	22	26	47	51	24	21	31	27	28	28	352
Lincoln,	PE	0	0	0	47	90	136	164	143	94	49	10	0	742
Nebraska	P	19	25	36	63	97	110	92	88	74	46	30	21	701
Scottsbluff,	PE	0	0	9	40	79	118	146	129	81	40	7	0	649
Nebraska	P	9	12	22	47	70	70	45	34	34	23	12	12	390
Las Vegas,	PE	5	10	31	69	123	183	208	195	139	67	21	76	1127
Nevada	P	14	9	11	6	2	1	13	12	9	7	8	10	102
Reno,	PE	0	7	22	40	71	101	130	117	78	43	17	2	623
Nevada	P	35	28	20	12	15	9	7	6	7	11	16	27	193
Hanover,	PE	0	0	0	30	77	112	134	113	76	39	6	0	587
New Hampshire	P	69	50	66	66	79	86	89	89	81	79	71	66	899
Manchester,	PE	0	0	0	31	81	118	135	120	79	41	12	0	617
New Hampshire	P	84	76	91	81	79	81	88	86	86	76	84	81	991
New Brunswick,	PE	0	0	12	42	86	123	145	126	90	50	18	1	693
New Jersey	P	93	91	92	94	98	96	129	131	92	91	85	91	1183
Vineland,	PE	0	1	14	43	90	128	154	133	93	51	18	2	727
New Jersey	P	100	93	99	86	91	89	118	120	91	82	79	96	1144
Albuquerque,	PE	3	8	25	52	91	134	151	136	96	52	15	3	766
New Mexico	P	9	9	10	15	17	15	36	33	23	21	11	11	210
Carlsbad,	PE	11	15	38	66	112	155	169	156	109	61	25	8	925
New Mexico	P	8	9	14	20	19	45	61	48	43	36	14	14	331
Buffalo,	PE	0	0	0	30	72	111	135	122	84	48	15	0	617
New York	P	81	72	71	68	73	69	73	74	75	78	80	81	895

United States		J	F	M	A	M	J	J	A	S	O	N	D	Yr
Phoenix,	PE	13	21	40	75	129	189	211	193	158	84	31	13	1157
Arizona	P	21	19	17	10	3	2	25	27	19	12	15	21	191
Tucson,	PE	16	21	37	65	114	170	192	176	142	79	32	16	1060
Arizona	P	21	22	19	10	5	7	56	55	29	14	20	25	283
Fort Smith,	PE	5	8	31	62	109	152	181	167	117	64	23	8	927
Arkansas	P	61	68	36	43	223	45	264	41	42	45	15	143	1026
Little Rock,	PE	8	10	31	65	112	151	176	160	114	64	23	10	924
Arkansas	P	125	102	118	128	127	94	85	84	80	72	104	104	1223
Fresno,	PE	13	20	37	63	99	139	180	165	114	70	31	12	943
California	P	44	40	41	24	10	3	0	0	4	13	22	40	241
Los Angeles,	PE	34	36	49	59	76	94	117	115	96	73	52	39	840
California	P	78	79	68	27	9	2	0	1	5	14	29	68	378
San Francisco,	PE	31	35	49	59	70	78	79	77	75	66	48	35	702
California	P	119	93	77	39	17	4	0	1	7	24	59	111	551
Denver,	PE	0	0	12	37	74	112	141	127	81	43	12	2	641
Colorado	P	12	14	28	52	62	36	42	36	26	26	16	16	366
Grand Junction,	PE	0	0	19	47	89	134	163	138	94	46	10	0	740
Colorado	P	15	16	20	19	18	10	15	28	23	22	15	14	215
Hartford,	PE	0	0	9	37	83	118	142	125	84	46	15	0	659
Connecticut	P	91	81	94	94	89	89	95	102	89	78	94	91	1087
New London,	PE	0	0	9	37	79	113	136	123	87	51	19	1	655
Connecticut	P	99	95	102	93	86	79	91	107	84	91	98	92	1119
Milford,	PE	3	3	22	48	92	129	154	137	99	55	25	6	773
Delaware	P	91	89	100	91	91	94	114	115	85	81	75	93	1119
Wilmington,	PE	0	0	15	43	89	128	152	135	94	52	20	2	730
Delaware	P	87	80	96	91	92	98	119	128	93	78	82	86	1130
Miami,	PE	47	50	74	103	136	162	172	168	147	116	76	57	1308
Florida	P	49	43	54	109	155	194	202	182	125	206	73	45	1547
Orlando,	PE	33	39	59	90	140	167	175	173	142	100	53	35	1206
Florida	P	50	56	91	88	81	161	230	180	200	121	39	45	1342
Albany,	PE	15	19	45	76	124	165	177	166	129	73	26	17	1032
Georgia	P	108	131	125	95	96	115	155	142	88	61	60	99	1275
Atlanta,	PE	11	13	31	62	108	144	157	146	111	61	26	10	880
Georgia	P	120	119	139	101	88	96	119	103	82	64	77	112	1221
Honolulu,	PE	68	65	77	87	105	118	119	120	118	108	86	76	1167
Hawaii	P	87	102	81	53	35	21	26	31	37	45	86	99	703
Boise,	PE	0	5	2k	47	80	112	152	133	81	46	12	0	689
Idaho	P	37	35	34	30	33	23	6	5	12	26	33	34	308
Pocatello,	PE	0	0	12	40	72	107	142	125	87	40	10	0	635
Idaho	P	32	27	31	33	34	26	17	18	21	26	24	27	316
Chicago,	PE	0	0	6	37	79	122	146	132	90	51	12	0	675
Illinois	P	49	48	68	74	90	93	84	80	76	67	59	50	838
Springfield,	PE	0	0	12	47	93	139	160	138	94	52	12	0	747
Illinois	P	52	54	77	88	107	106	78	74	85	68	62	51	902
Evansville,	PE	0	3	15	46	92	141	169	144	100	49	15	2	776
Indiana	P	98	82	105	99	101	101	85	82	80	70	88	85	1076
Indianapolis,	PE	0	0	12	47	93	135	152	135	94	49	12	0	729
Indiana	P	77	65	96	93	100	107	95	82	82	69	82	73	1021
Davenport,	PE	0	0	7	44	89	130	152	132	89	46	9	0	698
Iowa	P	39	39	59	73	97	108	88	90	89	61	48	38	829
Des Moines,	PE	0	0	6	44	91	130	157	136	90	46	10	0	710
Iowa	P	29	29	48	70	110	95	85	92	84	60	40	30	772
Garden City,	PE	0	1	19	48	90	133	160	147	99	49	13	0	759
Kansas	P	8	23	24	53	64	80	75	55	47	32	18	17	496
Wichita,	PE	0	0	15	53	92	145	172	158	103	55	15	0	808
Kansas	P	21	30	45	74	110	114	85	77	79	61	38	26	760
Bowling Green,	PE	3	5	27	57	104	145	165	150	106	56	20	5	843
Kentucky	P	122	101	130	114	112	99	106	92	81	75	100	107	1239
Lexington,	PE	0	3	19	50	92	134	150	137	102	40	18	2	748
Kentucky	P	112	83	113	90	94	107	84	85	70	61	82	91	1072

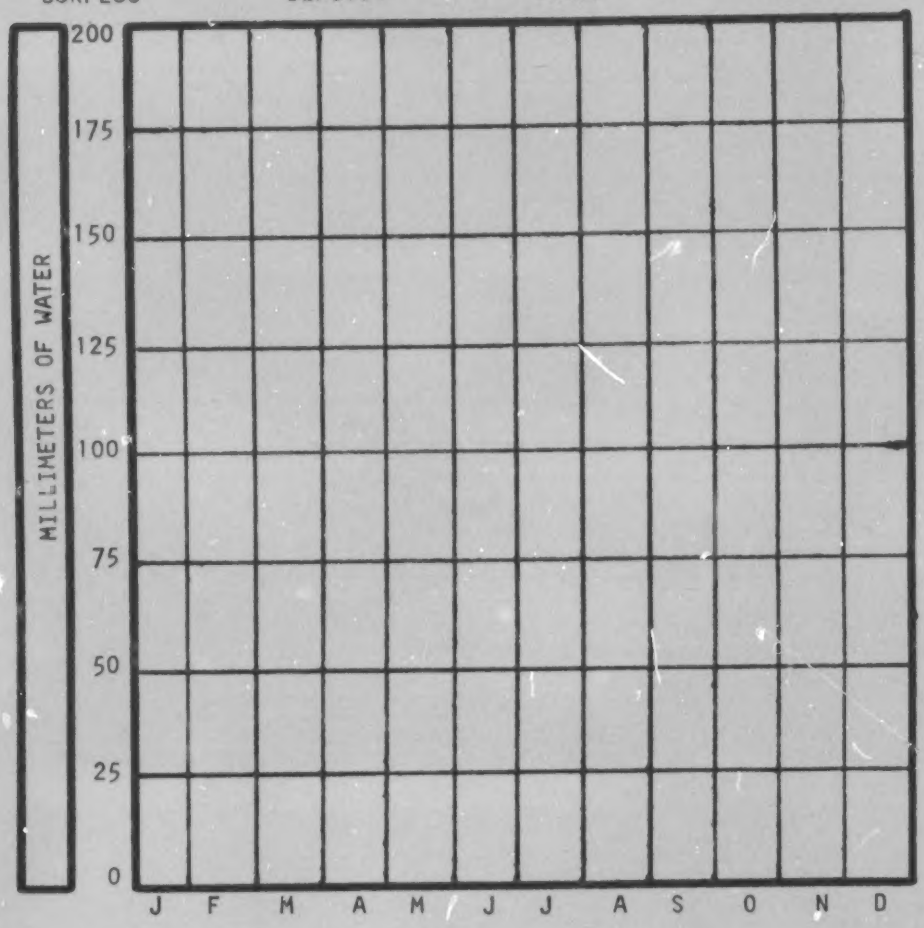
Student Study Sheet
(one per student)

WATER BUDGET

FOR _____

	J	F	M	A	M	J	J	A	S	O	N	D
P												
PE												
P-PE												
▲ ST												
ST												
AE												
D												
S												

SURPLUS DEFICIT USAGE RECHARGE



Student Study Sheet
(one per student)

Water Pollution Investigation

This enrichment unit is designed to provide some insights into the health aspects of water - its supply, pollution and re-use.

The Nature of Pure Water (c. Dow Chemical Company)

Materials: eye droppers
drinking water
one quart of:
a) fresh tap water
b) tap water after setting for 24 hours
c) well water (safe for drinking)
d) river or lake - label sample jars with letters only; don't tell students what they are.
e) rain water
f) distilled water
g) diluted vinegar
h) diluted NaOH (caustic) solution - 1 pellet/quart

Before you start! Two or three drops applied directly on the tongue from an eye dropper provide an adequate taste sample. Sip the water; DO NOT swallow it. Have students rinse out their mouths with water after each taste. Each student should see, smell, taste and feel each sample and then describe it. Fill in the following chart, answering "yes" or "no".

Sample	A	B	C	D	E	F	G	H
does it look good?								
does it feel good?								
does it smell good?								
does it taste good?								

Conclusion:

1. Which sample looks, smells, feels and tastes best?
2. Which is the best for drinking?
3. Which is worse?
   Explain what each sample was and how it can be improved by treatment?
   The vinegar (acid) feels "squeaky". Bases are slippery. If it isn't either, it is generally neutral.

Student Study Sheet
(one per student)

Answer to Question #3

Water treatment for the various samples. (Samples A-G)

a. none
b. none
c. Chlorination and/or aeration and action.
d. Chlorination plus settling aeration and action.
e. Chlorination usually is necessary.
f. Add mild basic salts to neutralize acid - allow to settle and neutralize, chlorinate.
g. Add mild acid to neutralize base; allow to settle and neutralize, chlorinate.

Water Pollution Investigation - The Effect Of Sunlight And Time On Water Purification. (c. 1971, Dow Chemical Company)

Materials: One quart of a soapy dish of water and a dish of tap water for each group.

Procedure: a) Note the appearance and odor of both samples at the beginning of the investigation.

b) Place both jars in a quiet area out of the sun.

c) Let students hypothesize as to what will happen in each of the jars by the end of the hour and in 24 hours. Record observations next to the hypothesis.

	1 hour Hypothesis/Observation	24 hours Hypothesis/Observation
A		
B		

1. Has anything settled out?
2. What does this mean to the community?
3. Is dish water good for people to drink? Why or why not?
4. Any grand conclusions?

Water Pollution Investigation - The Effect of Aeration And Filtration On Water Purification

Materials: previous samples of soapy dish and tap water
filter paper (paper towels will do)
funnel
2 aerators from a fish aquarium
empty container for each sample

Procedure: Pour water into separate containers from each jar through the fitler paper shaped into the funnel. Put the aerator tube into this filtered water for one hour, 24 hours. Note any changes in appearance or odor.

Conclusions: What effects does settling, filtration and aeration have on the appearance of each jar of water? Any grand conclusions?

Soil Management and its Contribution to Water Pollution (c. 1971, Dow Chemical Company)

Materials: 2 pie tins
enough soil to fill 2 pie tins evenly
grass seed
2 containers to catch run-off water

Procedure:

a) Sprinkle grass seed on one pie tin with the soil in it. Press the seed into the soil and moisten well. Place in sunlight and water twice daily. Let it grow 2-3 weeks. (As an alternate to actually growing the grass, use a piece of sod approximately the size of a pie tin.)

b) Set pie tins (one with soil and grass and the other with soil alone) on a slant on the edge of a table with the catch basins on the floor under them. Sprinkle equal amounts of water on the two pie tins. Compare the amount and quality of water in each catch pan.

Conclusions:

1. How can environment contribute to water pollution?
2. Is the logging or construction industry at fault in this?
3. What are some possible solutions to this problem?
4. How can you apply these results and problems to the desert?

Investigation on the Effectiveness of Methods of Water Treatment**

Sample	Total Phosphorous (mg/liter)	Total Nitrogen (mg/liter)	Degree of Algae Growth 10 days	Degree of Algae Growth 30 days
a. lake water alone	0.01	0.42	11	111
b. lake water + filtered raw sewage	0.07	1.18	111	1111
c. lake water + 4 ml. treated sewage from secondary sewage plant	0.14	1.18	11	111
d. lake water + 4 ml. sewage + special removal of phosphorous compounds	0.02	1.13	1	11

(Chart Cont'd.)

e. same as d except phosphorous compounds added back after treatment	0.14	1.13	1	111

(** It will be necessary to discuss with class various methods of water treatment)

Polluted lakes usually have a heavy growth of algae. This often looks like a green scum on the water. The many live algae and dead and decaying algae give off a rotten, fishy smell.

The exact cause of heavy growths of algae have been discussed and argued for years. Scientists don't yet agree on the cause. Man has polluted water with many substances. Two chemicals are usually blamed for the great increase in algal growths: nitrogen and phosphorous compounds. The data in the above figure is from a laboratory experiment. It was designed to test the importance of these compounds. Algae were grown in the test containers in the light at 22 degrees Centigrade. One set was grown for 10 days and the other for 30 days. The colors indicate the colors of the filters through which the algal growths were passed after 10 and 30 days. If only a few algae grew in the water, the filter was light-colored. If many grew, the filter was a bright green.

1. How do steps b and c relate to specific types of water treatment?

2. How effective are b and c in removing nitrogen and phosphorous from the water?

3. How is the nitrogen and phosphorous content of the water related to algal growth? Explain completely. You will probably have to do some outside research to come up with the answer.

4. Is nitrogen dangerous as it leaches (look it up) down through agricultural soils? If so, how? How much nitrogen based fertilizers are used on agricultural fields yearly in the area?

5. Where does the majority of phosphates in polluted water come from?

6. Does step d successfully remove the phosphates? What happens to algal growth after phosphate removal? Why?

7. Check with Water Sanitation People. How important is phosphate pollution of city waters? Will it continue to be this kind of problem or is it getting bigger? What can be done to stop this problem?

8. Tertiary water treatment (step d) is expensive. Suggest a better alternative to phosphate removal from polluted waters.

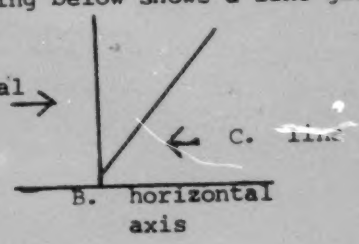
Many times when data is collected it is pictured on a graph. By the use of graphs, it is easy to see how one factor is related to another. This exercise is designed to help you make and read one type of graph, the line graph.

HOW TO USE THIS PROGRAM

You will learn a great deal from this program if you use it properly. Cover all of the page with a sheet of paper. Then pull down the sheet of paper until you come to the first "frame" (information and blank spaces for you to write in.) Look at the first frame; carefully study the information. Try to answer the question by filling in the blanks. Then pull down the sheet of paper until you can see the correct answer (to the left.) Of course it is easy to simply look at the correct answers and copy them but you would not learn very much. In a program you learn from answering questions, not from copying answers. A program is not a test! There is no penalty for wrong answers. If you do get an answer that doesn't agree with the program, go back to the previous frame and find out where you went wrong.

---

1. The drawing below shows a line graph.



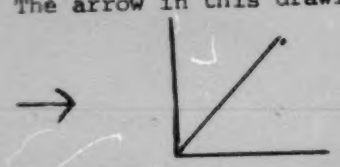
A line graph has three basic parts. They are

A. _____ B. _____

C. _____

A. vertical axis
B. horizontal axis
C. line

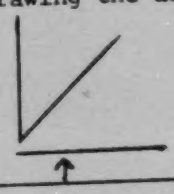
2. The arrow in this drawing points to the _____ axis.



---

vertical

3. In this drawing the arrow points to the _____.

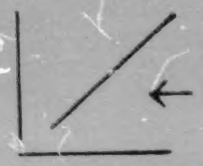
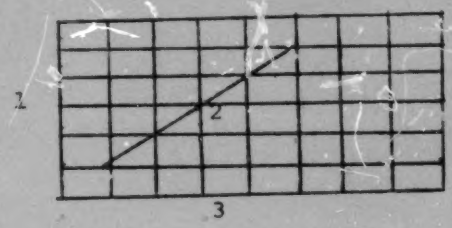
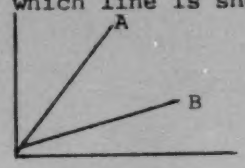
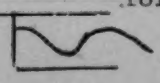


---

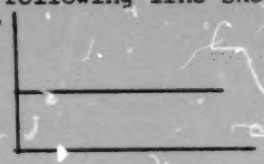
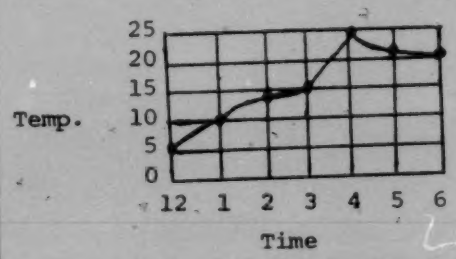
horizontal axis

4. The _____ axis runs from the bottom to the top of the graph.

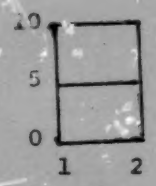
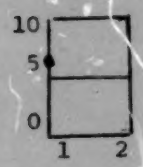
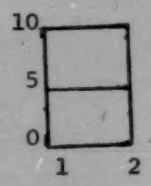
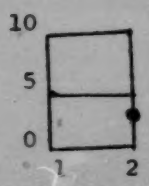
Student Study Sheet
(one per student)

vertical	5. The arrow in this drawing points to the _____. 
line	6. Label the parts of a line graph  1. _____ 2. _____ 3. _____
1. vertical axis 2. line 3. horizontal axis	7. When one constructs a graph, one places a dot at the intersection of the correct vertical and horizontal line. In order to show increase of a quantity, you place the dot higher on the graph. If you want to show a _____ of a quantity you place the dot higher on the graph.
decrease	8. The lines on either the vertical or horizontal axis should be evenly spaced with the same value between each line. If a vertical axis began 0, 2, 4, 6, the next line should be marked _____.
8	9. If the horizontal axis begins 0, 5, 10, 15, 20, the next number would be _____.
25	10. If you connect the dots on your graph, the line will go up, down, or stay at the same level. If the line goes up, it shows an increase; and if it goes down, there is a _____. If there is no change, the line would _____ _____ _____.
decrease stay the same	11. If one were reading a graph and saw two lines, as in the figure below, which line is showing the fastest increase? ___. 
A	12. In the following graph, the line shows first a _____ then a _____ followed by a _____. 

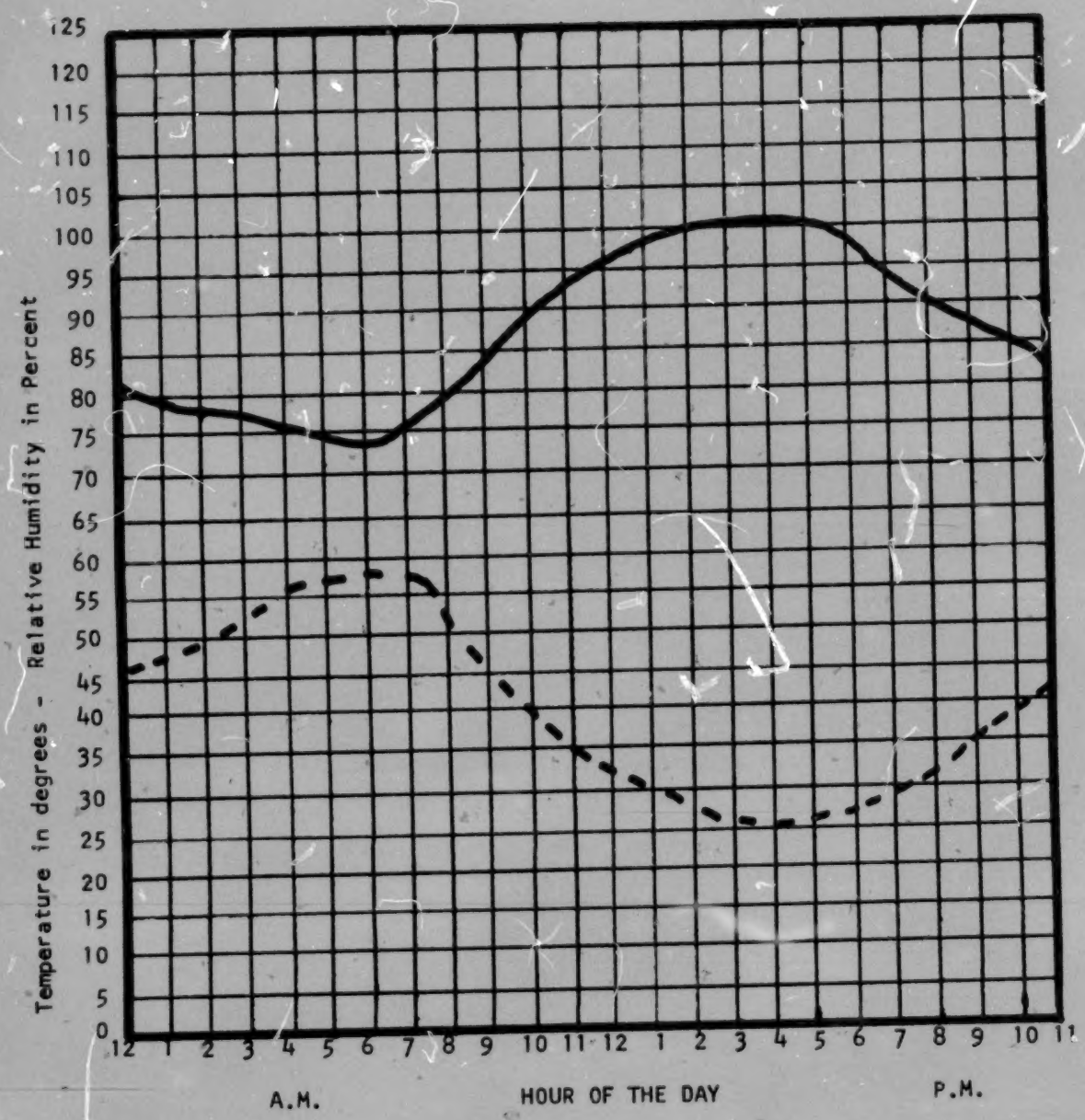
103

decrease increase decrease	13. Is the following line showing an increase, decrease or no change?  Ans._____
no change	14. The amount of material to be presented on a graph will determine what value is given to each line. In order to make the graph easy to read, the entire space available should be used if possible. The graduations (spaces between the lines) can be any convenient value. If you had the numbers 2 8 14 and 18 to put on a graph that had to be placed vertically on a graph with 25 lines, what value would you give each line? _____
1	15. If you had 20 lines and you had to show the numbers 15 30 45 60 and 85, what value would you give each line? _____
5	16. Unless unusual data is to be presented, both the horizontal and vertical axis should start at the complete absence of any of the quantity to be shown. What value would you give the very bottom line? _____
0	17. What number would you give the line to the extreme left? ___
0	18. Observe the graph below:  What was the temperature at 12 o'clock? _____
5 degrees	19. Between 12:00 and 1:00 did the temperature rise or fall? _____
rise	20. How much did it change? _____
5 degrees	21. Often due to lack of enough lines on the vertical axis, each line represents more than one unit. How many degrees does each horizontal line represent?

Student Study Sheet
(one per student)

5 degrees	22. If the number you are trying to show on a graph is not shown on the vertical axis, you must place the dot between two lines. You should imagine that there are smaller invisible horizontal lines between the two shown. For example, where would you place a dot to show the number 6 on line 1? 
	23. To show the number 3 on line 2 - where would the dot be placed? 
	24. Concerning the graph in frame 18, what was the temperature at 5 o'clock?
22 degrees	25. Between which two hours did the temperature rise the most? _____ AND _____.
3 and 4	26. At what hour was it the hottest? _____
4 o'clock	27. When was the coldest temperature recorded? _____
12 o'clock	28. An hourly record was kept of the average temperature and relative humidity for the month of August in Phoenix. The data is on chart on following page (39).

Transparency &
Student Study Sheet
(one per student)



Legend: _____ Temperature

---------- Relative Humidity

28. cont'd.

Hour AM	T	RH	Hour PM	T	RH
12	81	46	12	96	33
1	79	48	1	98	30
2	78	50	2	100	28
3	77	53	3	101	26
4	76	56	4	101	25
5	75	57	5	100	26
6	74	58	6	98	27
7	76	56	7	95	29
8	79	50	8	91	32
9	85	45	9	88	35
10	90	40	10	86	39
11	94	37	11	83	44

29. At what hour is it the coldest? a.)_____
When is the humidity the lowest? b.)_____

a. 6 A.M.
b. 4 P.M.

30. The range of temperature was from a low of a.)_____ to a high of b.)_____.

a. 74
b. 101

31. The range of relative humidity is from a low of a.)____ to a high of b.)_____.

a. 25
b. 58

32. At 7:00 P.M. the temperature was _____.

95

33. At 11:00 A.M., the relative humidity was _____.

37

34. At 4:00 P.M., the relative humidity was _____.

Student Study Sheet
(one per Student)

25	35. Sometimes more than one line is shown on a graph. In order to show the meaning of each line a "legend" is included. The legend in frame 34 tells you that the two different lines show _____ and _____.
Temperature Relative humidity	36. The hour of the day is shown on the _____ axis.
Horizontal	37. The temperature and humidity rate is shown on the _____ . axis.
Vertical	38. The dotted line represents the _____.
Relative humidity	39. The temperature is represented by the _____ line.
Solid	40. At what time was the temperature the highest? _____.
3 or 4 o'clock	41. When was the day the coldest? _____.
6 a.m.	42. At what time was it the most humid? (highest relative humidity) _____.
6 a.m.	43. When was the air the driest? _____.
4 p.m.	44. At 12 a.m. the temperature was _____ degrees and the relative humidity was _____ percent.
81, 46	45. According to the graph was the temperature rising or falling between 12 a.m. and 4 a.m.? _____
falling	46. What was the humidity doing during this same time period? _____
rising	47. In the evening does the temperature rise or fall? _____
fall	48. During the same time period did the humidity rise or fall? ____
rise	49. Based on this graph, one can say that as the temperature increases, the humidity _____.

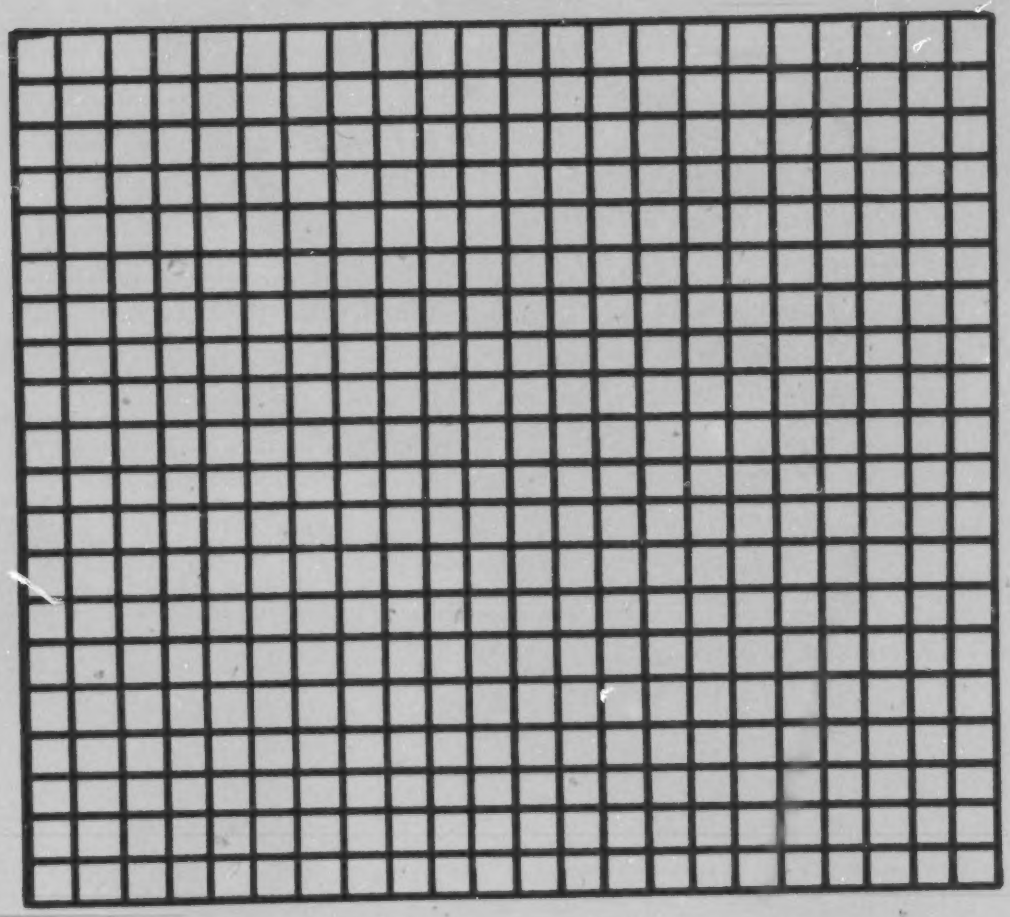
Student Study Sheet
(one per student)

decreases	50. It should also be noted that as the temperature falls, the humidity _____.
rises	51. Using what you know about constructing graphs, place the following information on the blank graph concerning "Percent of sunny days per month in Des Moines.

MONTH	AVG. % OF SUNSHINE
January	(contact State climatologist for figures)
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Transparency &
Student Study Sheet
(oner per student)

TITLE _____



ABSTRACT

Man is separated from all other animals in his unique ability to affect his environment. He is not forced to withstand the hardships of adverse weather, endure prolonged periods of hunger and thirst, and in constant peril from disease or predators. Man alone can create his own environment and since he is a gregarious creature he has developed a unique establishment called a city.

At the present time 70% of the people in the United States live in an urban situation and trends indicate that this percentage will increase. If man is to achieve harmony with his fellow man and with nature, then the concept of city living with all its many facets, both physical and sociological, must be studied, understood and perfected to the highest degree.

Des Moines , a mere youngster among cities in its 100 years is on its threshold of a second century of growth. It may follow the course that other cities have followed leading to decay and urban blight or it may begin to grow and prosper in an orderly fashion. Desirable growth will be the result of the influence of an educated populace, aware of all the problems a city environment poses. It is to this end that the following program is aimed.

INTRODUCTION

SAVE is an educational simulation program designed for use as part of most high school courses. The program portrays, in simplified form, some serious environmental problems, confronting students with some of the dimensions of these problems and engaging them in an effort to develop their own solutions.

SAVE provides exciting and practical classroom learning experiences, as students propose and decide on alternate ways of structuring a new city. The class's final plan is compared with the actual city of Des Moines.

The simulation provides a foundation to build upon and develop into a much larger unit of study and time period, or preferred parts may be used independently.

A focus on environmental education is needed, one that will bring the student and his environment into a "real life" encounter for understanding.

Therefore this program is an attempt to provide a framework of important ideas which may be helpful to educators at all school levels in developing meaningful classes concerned with environmental education.

The student completing this activity should be better able to transfer data about city problems from abstract form to practical application. The experience of building a model city should result in a subtle change in a students' outlook. Instead of being overwhelmed by the city's complexity, he should see the city as a whole in relationship with the environment.

We propose that if the student acquires particular broad environmental understanding he will develop social conscience that will affect his behavior toward the total environment. Therefore SAVE has developed this

integrated, interdisciplinary instructional program in environmental education, designed to promote an environmental awareness.

The learning is achieved not only through the use of written materials but mainly by communication among the students. The teacher has the important task of encouraging and motivating participants to become involved in the program. The teacher will want to participate actively in the simulation, encouraging discussion and bringing up questions that have a relationship on the program. SAVE is an opportunity for teachers and students to join in the excitement often sought in an educational experience.

SPECIAL NOTE TO TEACHERS

There are no evaluation devices included in the SAVE program for the following reasons:

1. The training and background of the teachers using the materials will vary.

2. The maturity and subject matter understanding of the students will differ depending upon the group using the materials.

3. Due to the flexible nature of the program, a teacher may wish to delete any portion or portions he desires or add supplementary units.

If a teacher so desires he may wish to employ outside assignments such as reading, question sheets or written reports. Tests, both objective or subjective, may easily be constructed if the teacher so chooses. One should keep in mind that creative thinking, attitudinal changes, openmindedness and group cooperation are not easily graded by a series of exams and homework.

It will be necessary for the teacher to duplicate certain materials for distribution to students as needed.

KNOWLEDGE OBJECTIVES

A. To be aware of the problems involved in providing an adequate water supply for industrial, recreational areas and uses.

B. To become familiar with the physical features of the land such as topography, climate, soil conditions, and natural drainage areas.

C. To recognize the various types of wastes produced in an urban area such as sewage, solid trash and air pollution and suggest steps to be taken for their porper disposal and control.

D. To conduct an investigation of the current land utilization within the city and appreciate the need for an orderly pattern of growth.

E. To be able to predict future population growth and distribution patterns based on present trends and past data.

F. To develop an appreciation for the aesthetic value of developing a city that harmonizes within the natural environment around it showing how such things as green belts and architectural design play a role in achievement of this goal.

G. To be aware of the problems involved in moving people and goods based on present population distribution and existing traffic facilities.

H. To be aware of the vast array of services such as health, police and fire protection-education and recreation that the city has a responsibility to maintain.

I. To recognize that a dynamic consumer market is vital for the economic well-being of an urban community--

J. To know that every human activity depends on the integrity and proper functioning of the ecosystem.

K. To know the causes and characteristics of problems of the deteriorating environment and be able to suggest realistic sollutions.

L. To know that protection of the environment must be a cooperative effort between the people and their government.

M. To encourage participation in the community through social, economical, recreational and political action.

N. To provide alternatives of choice, both practical and idealistic, in the decision making process.

O. To relate school life to real life.

CONDUCT OF THE SIMULATION

How you use the activity and which, if any, parts you eliminate, will depend on the needs of your class, your time limitations, the length and schedule of class sessions in the school, as well as discussion generated by the students involvement. The teacher may want to devote more than one class session to a particular phase of the program in the event that the students need more time or leave out some of the program in favor of other parts.

The teacher's role is that of a guide and adviser.

The class should be divided into groups of 3-6 students. The final objective of each group is to develop a model city.

Students should be shown the Des Moines,1980 map and given some orientation to it before they begin to use it as a base for constructing their model city. (See Fourth Lesson.)

On the first day, SAVE is introduced and explained to students. They receive materials and assignments, ask questions and discuss procedures.

A flexible attitude should be encouraged so that students do not judge the solutions of others as wrong because they do not conform with their own solutions. If students can justify their decisions, their solutions should be accepted.

The learning experience will be most successful when the class has acted on its own responsibility, and when the teacher has been flexible in adjusting to the project as it progresses.

CLASSROOM LAYOUT

If only a single classroom is available the playing area should be divided into sections by grouping desks together, or chairs around work tables. Players should be allowed as much freedom of speech and movement as possible without interfering with the work of other groups. No special student preparation is required, as much of the education value of a simulation like this is the result of students learning from each others ideas and from the resource materials.

FIRST and SECOND LESSON:

Aim: To provide an innovative approach to stimulate the students thought in relation to the urban environment. This will serve as an informal method of gaining student confidence and participation for subsequent introduction of the SAVE program.

Approach: Students will play "Conflict".

Materials: The game "Conflict", is found on the next fourteen pages.

Time Allotment: Two class sessions (Minimum)

Supplementary Materials: None

Assignment: None

CONFLICT

Principles Involved in this Exercise:

CONFLICT is designed to teach students this principle of ecology:

> "All elements of the environment are interrelated and interdependant. When a man changes the environment, it has consequences not only for himself, but for other forms of plant and animal life, and for the soil, air, and water."

CONFLICT will help the students in your class understand this interdependence of man with his environment. Equally important, it will enable the student to weigh the advantages and disadvantages of changing the environment and to make decisions about what kind of environment they want for themselves.

A brief description of the Exercise:

CONFLICT is played using a land use map of Des Moines which shows listing physical and man-made features.

At the beginning of the exercise, each student is assigned a role. It may be a human role, such as commercial interests or a farmer, or it may be a natural role such as an oak tree or pheasant, or it may be a basic resource role, such as air or soil.

The students are presented with a series of proposals about adding various man-made features to the map, such as an airport expansion or a shopping center. The students discuss the possible consequences from the viewpoint of the roles they are playing.

If a majority of the class votes to add the feature, a model of it is placed on the map, along with the given number of "Population Units." These units represent additional people moving into Des Moines because of the construction.

Throughout the exercise and after it is over, the teacher can initiate discussion about the interrelationships of man with his environment: For example, if the group has voted to build everything proposed, all the farmland will have been erased. Where is the oxygen to come from? Are there any natural areas for wildlife and outdoor enthusiasts?

HOW MUCH TIME WILL IT TAKE

If the class were to play straight through from beginning to end, it would probably consume a minimum of one hour and a maximum of four to five hours depending on the amount of discussion you stimulate. Some teachers may wish to plug in a unit on industry, agriculture, or economics before a vote is taken on each feature.

MATERIALS USED TO PLAY CONFLICT

1 land use map of Des Moines

10 Project Proposal Sheets (see score sheet for their names)

13 Team Identification Cards (see score sheet for their names)

1 pad of score sheets

20 drawings of the Project Proposals along with a dump, sewage disposal plant and eight population units.

HOW TO PLAY CONFLICT

1. Explain that the class is going to participate in an exercise called CONFLICT. In the exercise they're all going to have a chance to decide on what kind of city they'd like to live in.

2. Place the Des Moines land use map in front of the class so everyone can see it. Point out some of the existing physical and man-made features.

3. Explain that the map represents a complete, self-contained world. Food, air, and water must come from the immediate area and no solid liquid or gaseous waste may be taken off the map.

4. Show the students the Project Proposal Drawings and put the name of each on the chalkboard so they may decide which project they will discuss first.

5. Divide the class into thirteen (13) teams: farmland, farmers, unemployed workers, etc., and distribute the cards to the teams. Remind them that they are to think and respond as they feel the role they are representing would respond. Explain that each team will meet and will have one vote when the time comes.

6. Hold up the Project Proposal Drawing that the students have selected to discuss and place it on the map. The location of many of the pieces is not critical and the students could actually help decide its placement.

7. Read the material on the Project Proposal sheet including the "Effect of Population" portion explaining to the students that Population Units represent additional people attracted to Des Moines by the construction of the proposed project. Your students may want to add other facts about the project concerning what effect the project would have on them.

8. Next, have the teams discuss among themselves whether or not they're in favor of building the project. Set a time limit of three or four minutes for discussion although after a while they probably will not need that much time.

9. When the time is up have a spokesman for each team tell how his team is voting and a brief comment as to why they are voting that way.

10. Appoint someone to be record keeper and call out each team's name before they vote and to record and add the votes. If a majority of the teams want the project leave its drawing on the map along with any population units that may go along with it. If they decide not to have the project remove the pieces from the map.

11. Show the next Project Proposal Drawing and proceed as before. At this point you may wish to choose a student to be a monitor and take your place. The rest of the game can be run by students.

12. Whenever a total of three Population Units have been added to the map then a Dump and Sewage Treatment Plant must be added to take care of the added population. Its up to you to decide whether to surprise them with this when they have reached this point or warn them beforehand. If you do not warn them and they become disturbed about adding these features this is a good time to discuss the need for adequate advanced planning for the city's future growth. Remind them that as the exercise continues an additional Dump and Sewage Treatment Plant will be added for every three Population Units.

13. Continue with the exercise until you reach "the end." The end may come when a) the students tire and lose interest, b) all of the projects have been considered.

Supplementary Ideas.

A. After a few rounds of voting some students will probably note that certain groups always tend to vote "Yes" while others consistantly vote "No." To add interest have the students change cards and assume a new role.

B. Before too long, some student or perhaps you will mention "Who ever heard of a oak tree voting?" or "Teenagers aren't old enough to vote!" At this time you can take away the non-human role cards and permit only real people to vote. It will be quite evident what trend will now occur. This will be a good time to ask who does. Look out for the Air or Soil or the farmland.

C. This exercise may be extended to last for several weeks, Outside reports and research may be done concerning each of these projects. Surveys among the members of the class as to their own personal feelings can be taken. These surveys may be enlarged to sampling other students in the school or a neighborhood sampling. The imagination and ingenuity of the class and teacher are the only limitations as to how far one can go.

PRO FOOTBALL STADIUM

Description and Environmental Impact Facts:

1. The stadium will provide recreation for the people who enjoy watching football games.

2. It will create new jobs for people providing services for the fans.

3. On game days traffic will be heavy in the area. There will be a lot of noise and litter.

4. A farmland will be replaced by the stadium.

5. On game days students can work as vendors and earn extra money.

6. The stadium will be paying taxes to the city. The money can be used for many purposes.

7. Many more tourists will be visiting the city and spending money in our local stores.

Effect on Population:

People who enjoy sports will be attracted to the area and make their homes here. Add one population square.

AIRPORT ENLARGEMENT

Description and Environmental Impact Facts:

1. The enlargement will enable more people and products to enter and leave Des Moines faster and easier.

2. Because we will be tied closer to the major cities on the West Coast our commerce will increase.

3. New industries will be attracted to the area creating more jobs.

4. Tourism trade will increase since more people will be visiting.

5. Many houses in the immediate vicinity will be torn down and the people living there will have to be relocated.

6. Businesses and residents in the area will be bothered by the increased noise.

7. Air pollution will increase not only from the additional planes but with all the extra cars in the area.

8. The city jail will have to be moved to some other part of town.

9. Some farmland will be paved to make runways and parking lots.

10. Additional tax money will be coming into the city not only from the airport facility but from the other industry it will attract.

Effect on Population:

Due to the increased commerce and industry in the area more people will be seeking their homes here. Add two population squares.

INDUSTRIAL PARK

Description and Environmental Impact Facts:

1. The industrial park will be an area where many manufacturing plants and warehouses will be located. These industries will make a variety of products.

2. The city will grow through the many jobs created and more money will be spent.

3. The new businesses will be paying taxes to the city.

4. The unused land around or outside of the city will be cleared and paved for the location of the buildings.

5. Products and goods made locally may be cheaper and more plentiful because they are not shipped a long way.

6. Cars and trucks in the area, in addition to the industries, will add to the air pollution.

Effect on Population:

These industries will attract many new residents. Three population squares must be added.

SHOPPING CENTER

Description and Environmental Impact Facts:

1. The additional businesses will create more money: city stores can branch out into new areas.

2. The shopping center will need store managers, clerks, and many other kinds of people to run it. Many jobs will be created.

3. The stores in the shopping center will be selling many kinds of products to people in the area. Without the shopping center it would be difficult for people in the area to buy these products.

4. People in the area will go to the shopping center instead of driving to the city. This means that they will be driving less, burning less gasoline and so there will be less air pollution.

5. The area taken up by the shopping center will replace many acres of crops.

6. Traffic will be quite heavy and residents near the area will be annoyed by the additional noise and litter.

Effect on Population:

The shopping center will be a great convenience for many people. Because of this, local real estate men and land owners will build nearby. This housing will attract new people to the area. If you build a shopping center, add one population square.

NEW FREEWAY SYSTEM

Description and Environmental Impact Facts:

1. It will be easier to travel to the several large metropolitan areas.

2. It will provide a safe, efficient, fast, economical and convenient method for transporting people and goods from one place to another.

3. It will take the strain off our present system of streets and highways, therefore, people traveling short distances will be able to do so in a more relaxed manner.

4. One lane of a freeway will carry three times as much traffic at twice the speed and three to five times safer than one lane of a major street.

5. There will be more jobs in the city. People will be hired to build the highway and after completion people will be needed to work in the motels, gas stations and restaurants near it.

6. People owning land where the freeway is to be built will be able to sell it for a good price. Many slum homes will be torn down and the people will have to be relocated.

7. The highway will cut through some nice areas of town. Some cropland will be replaced but there will be landscaping alongside the highway.

8. People living near the freeway will be annoyed with the noise and litter that will be associated with the increased traffic in their neighborhood.

9. With more cars and trucks moving about air pollution will increase.

Effect on Population:

People who enjoy our low density, low profile city will be attracted to move into our city since they can move about easily. Add one population square if you decide to build it.

123

HIGH RISE APARTMENTS

Description and Environmental Impact Facts:

1. The high-rise apartments will permit a lot of people to live in a small area.

2. They will provide newer and better homes for more people.

3. The high density population units will not require a large amount of area thereby allowing the nearby land to be used for other purposes such as parks, stores, and industry.

4. With many people living in one general area mass transit can become a practical means of moving people from place to place. There will be less automobiles on the highways and thereby less air pollution.

5. Children living in the apartments will have no yards to play in and parents will not have to spend time cutting grass and other home maintenance work.

6. Building and servicing the apartments will create many new jobs.

7. The new residents will be spending a lot of money in the local stores and the city will get tax money from the residents and apartment owners.

Effect on Population:

Since the people will be living in the apartments they will not take up space outside of the apartments. If you decide to build them, add no population units.

CENTRAL DES MOINES PLAN

Description and Environmental Impact Factor

1. High rises development will be restricted to the Grand Avenue corridor and the downtown area.

2. This project will revitalize the down town area and attract businesses into the center of town.

3. Many new jobs will be created with the building and maintenance of new structures.

4. Traffic may be congested with people working and shopping in the down town area.

5. Single family residences, many of which are good examples of early architecture in the area, will be torn down to make way for parking lots and modern buildings.

6. The down town area will be noisy and dirty with increased usage.

7. Fire and police protection may become difficult with the high density of people in one general area.

8. Mass transit could become a possibility since we will have a large number of people going to one area.

9. New business will be attracted to the Valley because of the convenience of everything being located close by.

Effect on Population:

If you decide to build this project add one population square since more businesses will be moving into the area.

125

Score Sheet	Freeway		Industrial Park		Shopping Center		Grays Lake		Central Des Moines Plan		Pro Football Stadium		Airport Enlarge-ment		High-Rise Apartments		Brown's Woods Plan	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Water																		
Farmer																		
Commerical Interests																		
Air																		
Migrant Worker																		
Teenagers																		
Soil																		
Real Estate Developer																		
Cactus and Roadrunner																		
Industrial Worker																		
Desert																		
Unemployed Worker																		
Recreational Interests																		
TOTALS																		

126

THIRD LESSON

Aim: To provide a general understanding of the simulation process and to familiarize students with Des Moines' sites.

Approach: The teacher will introduce the unit, select the groups and describe the rules or any changes. (See page ____)

At this time the teacher may wish to introduce the simulation by use of a film(s).

A large Des Moines map should be in view for the entire class to view from the very first session. Each group will need the same type map to complete this exercise.

Groups should be asked to locate the following on their individual maps.

1. Des Moines River
2. Raccoon River
3. MacVicar Freeway
4. Municipal Airport
5. Grand Avenue
6. East 14th Street
7. State Capitol Complex
8. State Fair Grounds
9. Railroad Truck Lines
10. Your high school

Materials: Des Moines Map
Student hand-out listing site features to be found on map.

Time Allotment: One class session

Supplementary Materials: None

Assignment: None

127

FOURTH LESSON

Aim: To aqraint students with Des Moines' site features.

Approach: In preparation for developing a new city, the students should be asked to examine the characteristics of Des Moines relating them to ideal city features. In order to stimulate class discussion, the teacher will list the following features and ask the students to suggest their own ideal conditions and compare them with the existing Des Moines conditions. In doing this exercise, the students will be considering disadvantages and limitations in developing their own city.

The following suggestions will serve as a guide.

Water Source
- Ideal - river? spring? reservior?
- Des Moines - rivers

Climate
- Ideal - changing seasons? rain?
- Des Moines - changing seasons

Vegetation
- Ideal - forest? grassland? mountains?
- Des Moines - farmland

Wind
- Ideal - prevailing wind of moderate rate?
- Des Moines - variable winds

Flood Control
- Ideal - well drained area with channel to carry excess run-off?
- Des Moines- subject to flash flood from heavy rains

Location in Country
- Ideal - close to major market for products and recreation
- Des Moines - fits

Transportation
- Ideal - easy access to other city with freeway going around city mass transit.
- Des Moines - poor mass transit, freeway cuts through city

Population
- Ideal - Zero Population Growth, self supporting
- Des Moines - low rate of growth

Materials: Same as preceding lesson.
Time Allotment: one class sesstion.
Supplementary Materials: None
Assignment: None

FIFTH LESSON

Aim: To have students begin designing their own city.

Approach: In this activity the students will start working in groups, and are asked to transfer the thoughts gained from the previous day's class discussion to their local setting. They will demonstrate their full ability to do this by the final development of the map of their new city.

Keeping in mind environmental considerations, each group is asked to formulate one or two general goals they wish to achieve in designing their city.

Examples:

To help all city dwellers to enjoy decent, meaningful, and independent lives in the cities of the future.

To help people realize that earth is an island, a spaceship and there is only so much land, water, and air.

To help people prepare emotionally, psychologically, technologically for the future.

The remainder of the class session will be spent developing group decisions on one or both of the following questions.

1. What conditions of life do you want to preserve and what do you want to eliminate?

2. What will be the effect of your city as a whole on man's social institutions, organizations, and individual behavior?

Materials: Players Manual

Time Allotment: One class session

Supplementary Materials: None

Assignment: None

SIXTH LESSON

Aim: To understand the concept of change.

To learn why people move and what they look for in a new environment.

To realize that there is a variety of dwelling types necessary to respond to the variety of man's needs.

Approach: This assignment is a continuation of the previous day's study and the purpose is to give the students a framework or base to work from, a deeper awareness of their city as it exists, what changes would be desirable to provide for future growth, and to understand the concept of change. This may take more than one class period.

Questions for Discussion:

1. Students are asked to discuss why change takes place in the city. Consider such things as: population density, street paving, high-rise apartments, freeways, shopping centers, blighted areas, urban sprawl.

2. Discuss how changes in a society lead to changes in the man-made environment, creating new forms and making others obsolete. The persistence of some forms, such as the churches or schools can be used to illustrate that use of a building can remain somewhat constant and modifications can reduce the need for extensive change.

3. Discuss what changes are going on in the immediate environment.

4. Students can list things which have not changed and speculate why.

5. Students may discuss some of the reasons for living where they do. Have they moved recently? Why?

6. Discuss the limitations imposed by our society affecting our choices about where and what we build. how tall. how big, what style, how many families per acre, animal (pet) privileges, etc. (This discussion could include ideas about the economic and racial restrictions in our city.)

Discuss the idea of people being able to move based upon need and choice rather than upon restrictions and limitations of circumstance, in your city plan you will develop.

7. Students are asked to discuss changes that might occur to the environment between now and the next 50 years.

SIXTH LESSON (Cont'd)

8. Place the following chart on the chalkboard or have a student act as a recorder and keep a record of student responses to the following questions:

How many years has your family lived in Des Moines?
1 2 3 4 5 6 7 8 9 10 11 12 13

Why did your family come to Des Moines?
Climate Better other

How long have you lived at your present address?
1 2 3 4 5 6 7 8 9 10 years

If you did not always live in your present home, why did you move there?
Closer to job
Closer to school
Better neighborhood
Good buy on house
Other

Materials: Same as preceding lesson.

Time Allotment: One to two class sessions.

Supplementary Materials: None

Assignment: Life Style Questionnaire (Optional)

131

Life Style Questionnaire

This problem investigates what different people in your city might look for in choosing a place to live. Think about what each one needs and put an X in the column under which you think they would prefer.

	What should be nearby													What kind of street					What kind of house										Where should it be				
	super market	factory	elementary school	junior high school	high school	movie theater	playground	swimming pool	drug store	department store	railroad station	bus stop or subway	fire station	police station	restaurant	no cars allowed	many houses	few houses	quiet	busy	one bedroom	two bedroom	three bedrooms	four bedrooms	five bedrooms	row house	semi-detached	single detached	ground floor apartment	12th floor apartment	Lake shore	city	suburbs	center city	country
Farmer with a wife and two children																																			
Junior High School student living with mother and father, brother and sister																																			
Factory worker and his wife																																			
Doctor, 70 years of age, alone and no longer practicing medicine																																			
A mother with six children and her husband is a fireman																																			

86

132

SEVENTH LESSON

Aim: Study population make-up of Des Moines.

Approach: The following questions may be discussed in small groups or the class as a whole to better understand the population make-up of Des Moines.

1. The Des Moines population has increased slowly over the last few years. What is the present population of Des Moines? How has the population of Des Moines changed over the past 10 or 20 years? What are projections for future growth?

2. Compare Des Moines population growth with selected cities over the past 10 to 20 years.

3. What do you suppose are some of the reasons for this somewhat stable growth rate? Support your answer.

4. The city has not only grown in numbers, but also in direction. In which direction has the city grown in the past? Why? Which areas of the city are the most densely populated now? The fastest growing now?

5. Demography

   a. Birth rates are an important index of population growth. The birth rate is figured on the number of live births per 100,000 population. How has the birth rate changed in Des Moines in the past 10 or 20 years?

   b. Larger families are often condemned as ecologically unsound. Minority groups are often said to have larger families. Is there any basis for these two statements? If so, what? Can you say that large families are the problem? Or is it the total number of children? If this is the case, is there any general conclusion to be reached?

133

c. Children yet to reach the child-bearing age can be a factor. Why is this so? What is the percentage of children under the age of 15 in the city of Des Moines. What are the socio-economics and ethnic percentages? Is this significant? Why?

The teacher will introduce Neighborhood Study Projects at the conclusion of class population discussion, as an assignment.

6. Neighborhood Study Projects

a. What do homeowners in the area think are the neighborhood's three biggest problems?

What might be done to solve these problems?

Conduct your study as a scientific random sampling to get an adequate cross-sample of ideas and opinions.

Survey 3-5 homes in the neighborhood attempting to get as much variety as possible.

b. Run a comparison of the city area and suburb area - size, amount of open space, number and kind of people, density, cultural and recreational activities, problems, etc. How do they differ; how are they similar? (Optional)

c. Conduct field trips to other similar areas and note how they are similar and different. (Optional)

d. Conduct an extensive survey and mapping expedition of a two square mile radius around the school. Map the area block by block. Use symbols and drawings to designate different types of land usage.

7. Zoning

a. Determine major land usages within the community by percentages and major concentrations within the city and the study area -
1) residential
2) commercial
3) industrial
4) public lands
5) semi-public lands

b. Conduct a survey as a City Planning Committee to determine the various types of housing available.

c. Investigate city ordinances - zoning, building, subdivisions, health. What are the purposes behind each? How were they arrived at? Which ones need to be changed? Does the method of arriving at them need to be changed? Prepare alternative ordinances to the ones that you think are weak and work out a plan to put these changes into effect.

d. Appoint study groups to examine small land areas (3-4 blocks) with which the group is familiar and plan for and develop a plan for future land use in the area.

1) sketch the area with all existing buildings and land use.

2) consider future land use that will be compatible with present land use.

3) sketch future land use proposals and justify your actions to a mock city council and homeowners in the area.

Materials: None

Time Allotment: One class session

Supplementary Materials: A Des Moines Street Map (for use in 6d)

Assignment: Neighborhood Study Project

EIGHTH LESSON

Aim: To develop land use for the model city.

Approach: The teacher will ask each group to review information in the data bank. (approximately 5-10 minutes)

Refer to the Data Bank and the Materials section on Page 4 of this guide to supply the statistical information needed in this lesson.

The teacher should ask the class to keep in mind the limitations of the project, such as current population, income level of different groups, and that students' plans should consider the size of Des Moines' labor force for 1990. These people will require a certain amount of land in various categories of use.

Each group will develop a list of services, organizations, facilities, and land use that they wish to plan and provide for in their model city. Toward the end of the period the teacher should write the following list on the board as a comparison. (The students may or may not want to include all in their plans.)

schools	parks
police	recreation areas
hospitals	footpaths
fire houses	bicycle paths
streets and alleys	single-family units
flood prevention	multi-family units
agriculture areas	commercial areas
mobile home concentrations	industrial areas
freeways	landfill operations
post office	airports
factories	water and sewer system
banks	sanitation
truck docks	street maintenance
railroads	lake
subway	trees - landscaping
bus routes	fire hydrants
office space	vehicle parking
libraries	green belt - open space

Materials: Data Bank

Time Allotment: One class session

Supplementary Materials: None

Assignment: Using the list of features the groups compiled in class, the students are to rate their own neighborhood as to the availability of the feature. If they are within 2 miles of their home they are to place a check after that feature. (Optional)

NINTH LESSON

Aim: To develop the model city.

Approach: This is the principal part of the simulation and should last for 5-10 days, or however long the groups take to successfully complete the activity. It can be adapted to the teacher's lesson plans, or interest generated by the students.

During the remainder or this part of the simulation the students will work in groups to construct the city as they visualize it, using information they have worked out in the group discussions.

By mapping and considering land uses, it is possible to plan intelligently for city development. This methodology is indispensable in city-planning as it reveals city problems and the potentials for correcting them. By the application of generalizations to the city he knows, the student begins to see that some sort of order does exist is a city.

Students will construct a land use map using materials furnished in class and their list developed in Lesson 7.

There are several ways to construct this map. For example, the city areas can be filled in with patterns or colors that indicate how they are used, which can be interpreted from the legend. Only the dominant land use should be shown for each area.

Students should indicate what the different colors on their maps stand for. They should realize that when they color an area they are identifying only the major land use (residential, industrial, or other) because the scale of the map does not permit them to show details.

A color key can be developed to show each category of land use. This could make the comparison of the group's map much simpler at the end of the project. A typcial one is as follows:

Manufacturing - Red
Commercial - Light Red
Public buildings - Yellow
(church, school, university, hospitals)
Parks, cemeteries - Dark Green
Residential:
single-family -- Purple
multi-family -- Orange
Landfill - Black dots
Transportation System - Black
Agricultural - Light Green
Unused - Brown
Water - rivers, lakes -- Blue

The finished map developed by the students may show:

Limits of urban settlement
Downtown commercial core
Important shopping centers
Major Industrial sections
Major transportation arteries and facilities
Major areas of public land uses (buildings, parks, university)

At the conclusion of this activity, the students should realize that the solution to our environmental crises involves individual action and a cooperative effort between the people and their government.

They should be able to explain the different kinds of land use and why they located it where they did.

They should be able to explain why a city grows or declines.

They should be able to infer that man is part of an eco-system that has a delicate balance and that preservation and improvement of our environment may involve a commitment to a change of attitudes and life styles.

Materials: Des Moines Comprehensive Plan
Colored pencils or map marking crayons.
Large sheets of white paper. (newsprint, butcher paper, etc.)

Time Allotment: Five to ten class sessions.

Supplementary Materials: None

Assignment: Continue work on model city development.

ENVIRONMENTAL CHECKLIST: Rate Your Community

This form may be used to survey the degree of pollution in your community. After rating the community in the various categories of pollution, you can use the third column to indicate whether government, private business, or individuals are responsible for the problem. In the fourth column you can suggest possible remedies.

POSSIBLE SOURCE OF POLLUTION	RATE PROBLEM IN YOUR AREA*	WHO OR WHAT IS RESPONSIBLE?	HOW CAN PROBLEM BE ALLEVIATED?
Sewage Disposal			
Industrial Pollution of Streams			
Air Pollution by Factories, Incinerators, etc.			
Motor Vehicle Exhausts			
Auto Junkyards			
Dumping in Vacant Lots			
Garbage Disposal			
Agricultural Pollution			
Construction / Mining Projects			
Traffic Noise			
Aviation Noise			
Other Forms of Pollution			

*Serious, getting worse, minor problem, or no problem

This survey form is presented for use with the special issue. See p. 7 for suggestions on its use. American Education Publications grants permission for reproduction of this page for classroom use.

IT-TE-14

93 139

ENRICHMENT UNIT 10 - NOISE

Some Qualities and Kinds of Sounds (c. 1971, Dow Chemical Company)

1. Go with the class to several different areas of the school. Listen.

2. Have students do a similar exercise on sounds in their homes.

3. Have students describe in an essay the sounds they hear. Have them be very descriptive.

4. Make comparisons of sounds which are pleasant and which are unpleasant. Explain why they are pleasant or unpleasant.

5. Does Iowa have any standards or regulations on noise? If so, what are they?

6. Make a tape of acceptable and unacceptable sounds - city-wide.

7. Are noise--abatement regulations in effect at the municipal Airport? What are noise-abatement regulations. Why or Why not? Obtain opposing viewpoints.

8. Do construction, traffic, people contribute dangerously to the noise levels in Des Moines? Why or why not? Back up your answer.

ENRICHMENT UNIT 10 - SOLID WASTE DISPOSAL

INVESTIGATION - The Biodegradability of Different Materials.

Materials: 1-2" deep plastic trays
earth to cover collected items

Procedure:

1. Collect items you consider important to the solid waste disposal problem in Des Moines.

2. Bury them in the pans under an equal layer of sod.

3. Investigate the condition of the materials at 1, 2 and 3 week intervals. Describe their condition completely in chart form.

4. Explain the reasons for the condition for each type of material. How can this be applied to the solid waste disposal problem in Des Moines. What implications do your conclusions have for sanitary landfills and recycling programs?

5. If the materials you tested are found in the city dump, do you think that the cities will be able to use dumps over and over? Why or why not?

Additional Activities

1. Collect data from the Des Moines Sanitation Department as to the amount of garbage and refuse collected in the cities also indicating types and percent of garbage and refuse.

2. What are sanitary landfills? Where are they located? Draw up a list of factors to be considered in the planning, development, and ultimate use and re-use of sanitary landfill sites.

3. Project the needs, land, time, money, manpower for Des Moines for solid waste disposal.

4. Recycling is just beginning to be a factor in solid waste disposal. Formulate a city-wide program for the Sanitation Department to participate in a recycling program.

5. Gather information from the cities Sanitation Department on the technique they are implementing in solid waste disposal innovations. What are some ecologically sound methods of dealing with the solid waste disposal problem?

6. Compost building - what is it? How could it be implemented with individual families, on a city-wide basis?

Student-Family Survey on Improving our Environment in the City

Instructions:

Many people express a great concern for our environment. All too often, however, they feel they can do nothing about it and it's someone else's problem. But each of us can do our part to help improve our environment. Following is a list of suggested ways we can help our environment and conserve our resources. With the help of your family complete this questionnaire by using the following responses.

1. We think this a good idea and are presently practicing this.
2. At the present time we are not doing this but we'll give it a try.
3. We don't do this and don't plan to either because it's foolish, we don't agree with the idea or don't think it's important enough to matter.
4. This item doesn't apply to us.

Water

1.____Repair leaky faucets (a slow drip can waste 15 gallons a day). To check for a leak in a water system, turn off all faucets and other outlets and watch the hand on the meter for 10 to 15 minutes. If it continues to move, there is a leak.

2.____Take showers instead of baths.

3.____Turn off water while shaving, brushing teeth, etc.

4.____Reset flush-o-meter toilets to use 3½ gallons instead of the normal 5 to 8 gallons per flush. Reset float or put one or two bricks in your tank.

5.____Run dishwasher only when you have a complete load.

6.____Keep water heater setting at 140 degrees F. (normal)

7.____Keep a bottle of drinking water in your refrigerator. Running water until it is cold could waste a gallon or more.

8.____Wait until you have a full nine-pound wash before running your washing machine.

9.____Follow manufacturer's instructions for detergent or soap. If you have a septic tank, using too much detergent may cause problems. Phosphates cause pollution. Encourage use of low phosphate detergents.

10.____Avoid using disposable diapers. If you must use them, follow disposal instructions carefully.

11.____Avoid buying colored toilet tissue or paper towels. The dyes are not an excessive problem in the city but cause pollution at the paper mills and the water supply in those areas.

12.____Don't use paper towels where washable, reusable items will do the job.

13.____Don't flush away what you can put in the garbage, especially unsuspected cloggers such as cooking fat (give it to the birds), coffee grounds or tea leaves.

14.____Drain oil from power lawn mowers into a container and dispose of it. Don't hose it into the sewer system. It could be used as a weed killer in alleys and along fences.

Air

1.____Report any air pollution source.

2.____Motor vehicles are the major contributors to air pollution in the City. Keep your car in tune and in good working order.

3.____Ride a bike or walk short distances.

4.____Take mass transportation where available or form car pools if feasable.

5.____Show auto salesmen that you are concerned about the pollution the car you might buy will cause. (Be sure the car burns fuel efficiently (rates high in miles per gallon.)

6.____Limit smoking or stop altogether. It's a source of air pollution.

7.____Since fires, charcoal and gas barbecues add to air pollution, you should cease these practices.

8.____Burning leaves or garbage is illegal in many towns, including Des Moines. Don't do it. As a citizen, you can swear out a summons and bring a garbage-burning or noisy neighbor to count. Or, if you can gather a group of people, you can file a class-action suit against a noisy airline or negligent public anti-pollution official.

9.____Use appliances in off-peak hours. In summer avoid ironing, washing, etc., in the late afternoon when air-conditioning drains the most electricity. Using only the power you need helps conserve natural resources and minimizes pollution.

CHEMICALS

1.____Use pesticides and herbicides only when necessary, and follow manufacturers' instruction. Avoid DDT, lingering poisons, compounds of leads, mercury and arsenic. If your garden has water, sun, shade, and fertilizer, it may not need pesticides at all.

2.____Make sure fertilizer is worked deep into the soil. Don't hose it off into the water system.

3.____Patronize stores that specialize in food grown without pesticides. Campaign in your supermarket for the sale of foods grown without pesticides, using organic fertilizers.

4.____Don't dispose of chemicals or medicines in the sewer system.

5.____Use biodegradeable household cleaners, for example, vinegar and water for window cleaning.

RECREATION

1.____Do not litter, and don't tolerate it from others. A polite remark, I think you dropped something, should do the trick. If there is no trash recepticles where you are, pack up your garbage and bring it home.

2.____Try sailing, rowing or canoeing instead of motor boating. Use only the horsepower you need and don't dump leftover fuel in the lake or ocean.

3.____When hunting, don't leave shell cases or other remnants.

4.____Motocycles and four-wheel-drive vehicles should remain on existing roads and trails. Hikers and horseback riders should remain on trails, too.

5.____Make cleaning up an area a part of the outing. Leave the area in better condition than when you found it.

NOISE

1.____Fight to keep noise at a minimum at all times, especially between 11 p.m. and 7 a.m. Suggest that your local radio and television stations remind listeners at night to turn down volumn. To reduce noise of trash collection, buy a plastic garbage can instead of a metal one.

POPULATION

1.____Limit family size by producing only two children. If more children are wanted, adopt them or request that a foster child be placed in your home. (Information on birth control can be obtained through PLANNED PARENTHOOD ASSOCIATION.
Answer this question first as it presently pertains to your family and secondly as you personally feel about the matter in your future.

2.____My own personal feelings about limited family size. (This answer would either be 2 or 3)

LEGISLATION

1.____Write letters to your governor, state senators, congressmen and other national legislators to let them know how you stand on environmental issues.

2.____Support legislation for vehicle inspection for auto emissions.

CONTAINERS

1.____Don't throw anything away that can be used again. When you shop, take a reusable bag (wicker, cloth, plastic) with you and don't encourage excess packaging and paper bag use. Don't take an unnecessary bag for a loaf of bread or a can of soup. Tell the supermarket checkers you don't want double bags if it is unnecesaary. Reuse all supermarket bags for garbage disposal.

2.____Participate in a recycling program if you know of a club or organization collecting materials.

3.____Plastic produce bags are offered in many markets. If you don't have a use for paper bags, take plastic bags and bring them with you for reuse the next time you go shopping.

4.____Avoid plastic bottles when possible. They do not decompose and some give off poisonous fumes when incinerated. Reuse the ones you have by filling them from glass containers, which can be recycled. If the product doesn't come in a glass container, complain to the manufacturer. When possible, use biodegradeable pasteboard, cardboard or paper containers.

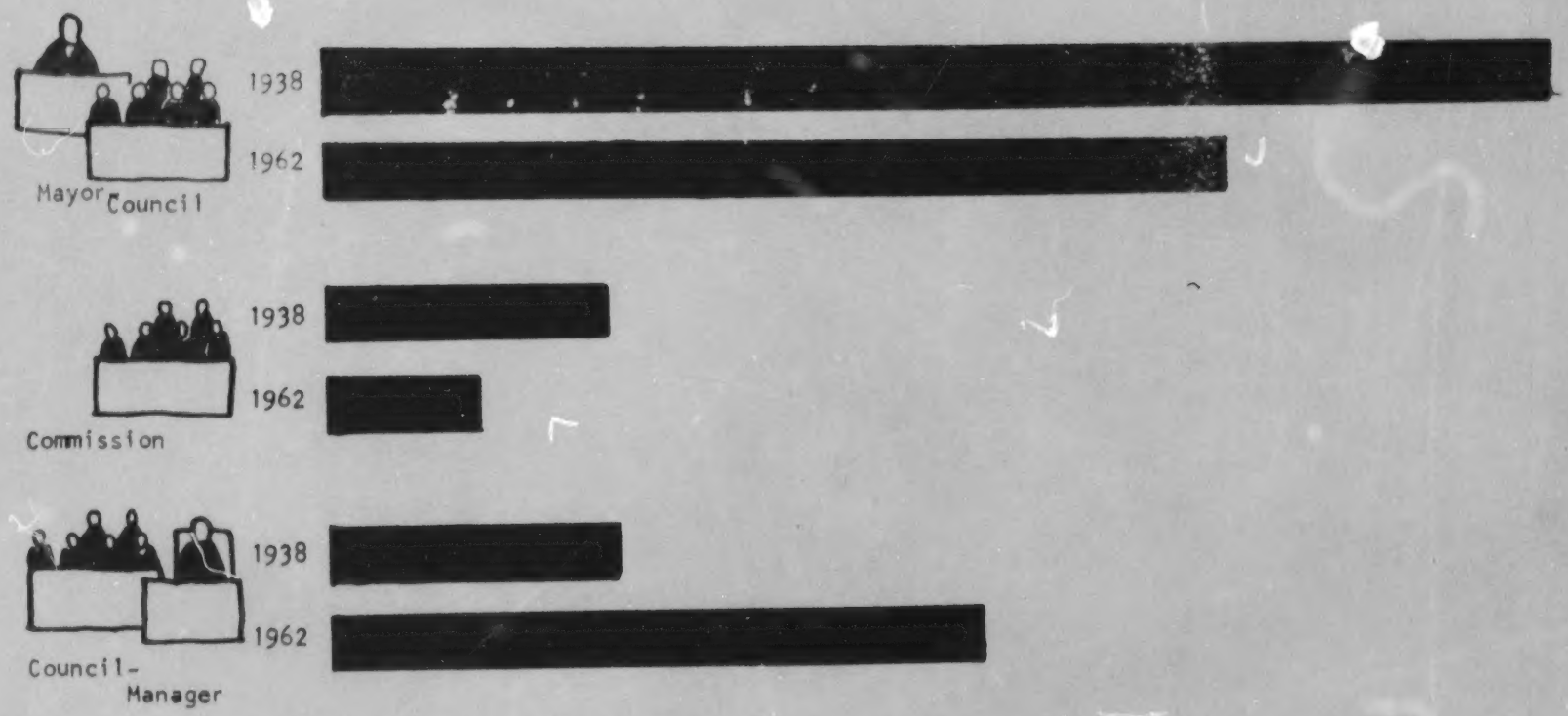
5.____Avoid using plastic trash bags because they never completely decompose but are a minimal problem in landfill sites. They are broken into pieces and liquify due to the heat of decomposing organic matter.

6.____Hangers can be returned to the cleaners for reuse. Boycott a cleaner who won't take them back.

7.____Start a compost pile or bury biodegradeable garbage. It improves the soil and reduces the amount of solid waste to be collected, and disposed of by the city sanitation department.

FORMS OF GOVERNMENT OF AMERICAN CITIES

(Over 5000 Population)

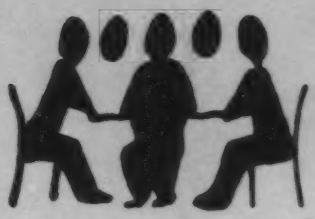


146

MAYOR-COUNCIL PLAN

THE VOTERS ELECT

THE MAYOR



THE CITY COUNCIL

The Mayor prepares the budget and proposes laws.

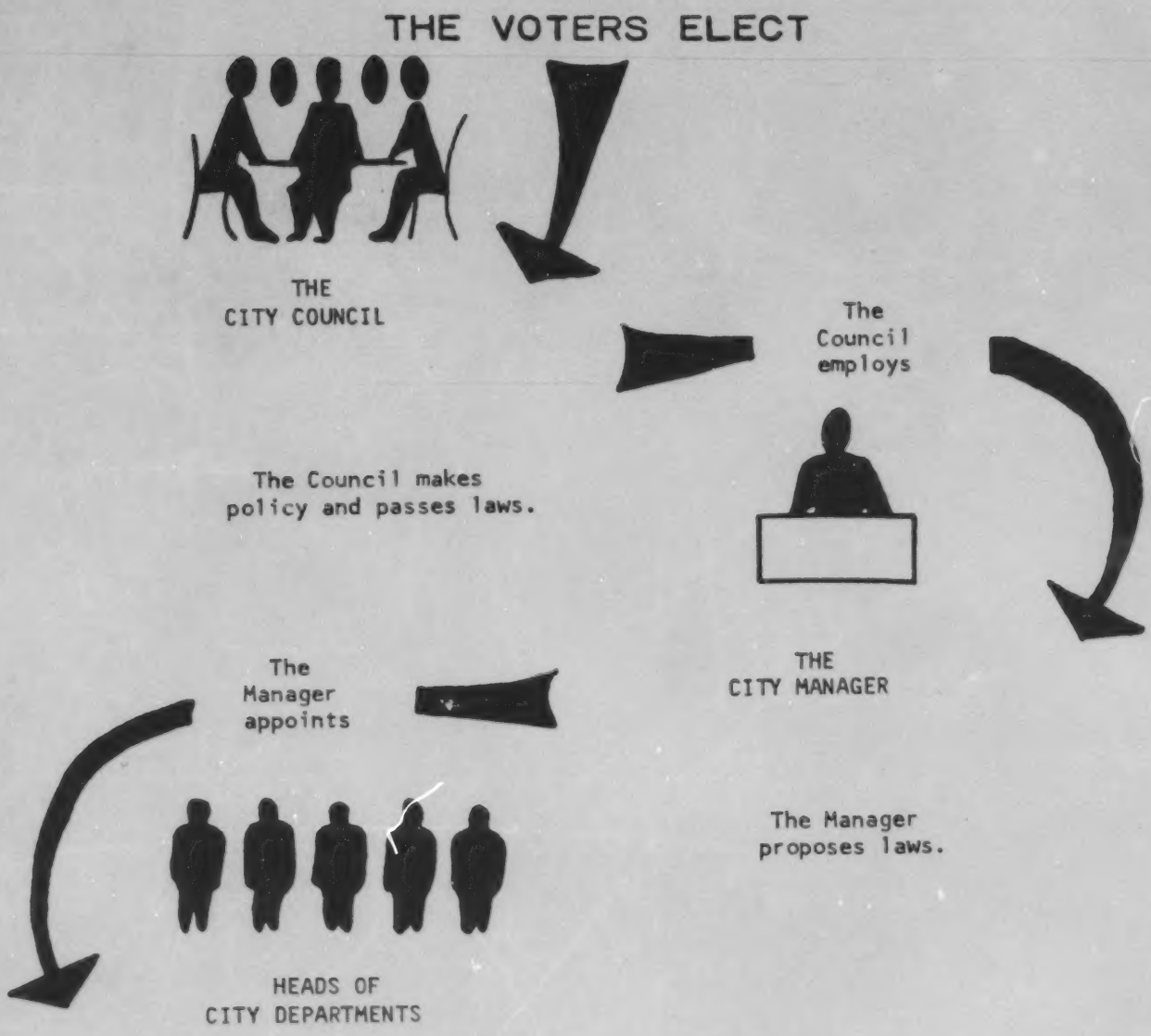
The City Council passes laws and may approve Mayor's appointments.

The Mayor appoints

HEADS OF CITY DEPARTMENTS

144

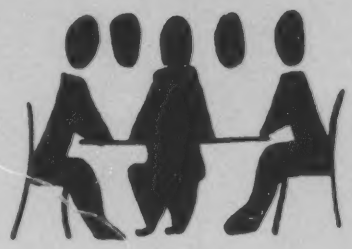
COUNCIL-MANAGER PLAN



COMMISSION PLAN

THE VOTERS ELECT

THE BOARD OF COMMISSIONERS



Commissioner of Finances

Commissioner of Welfare

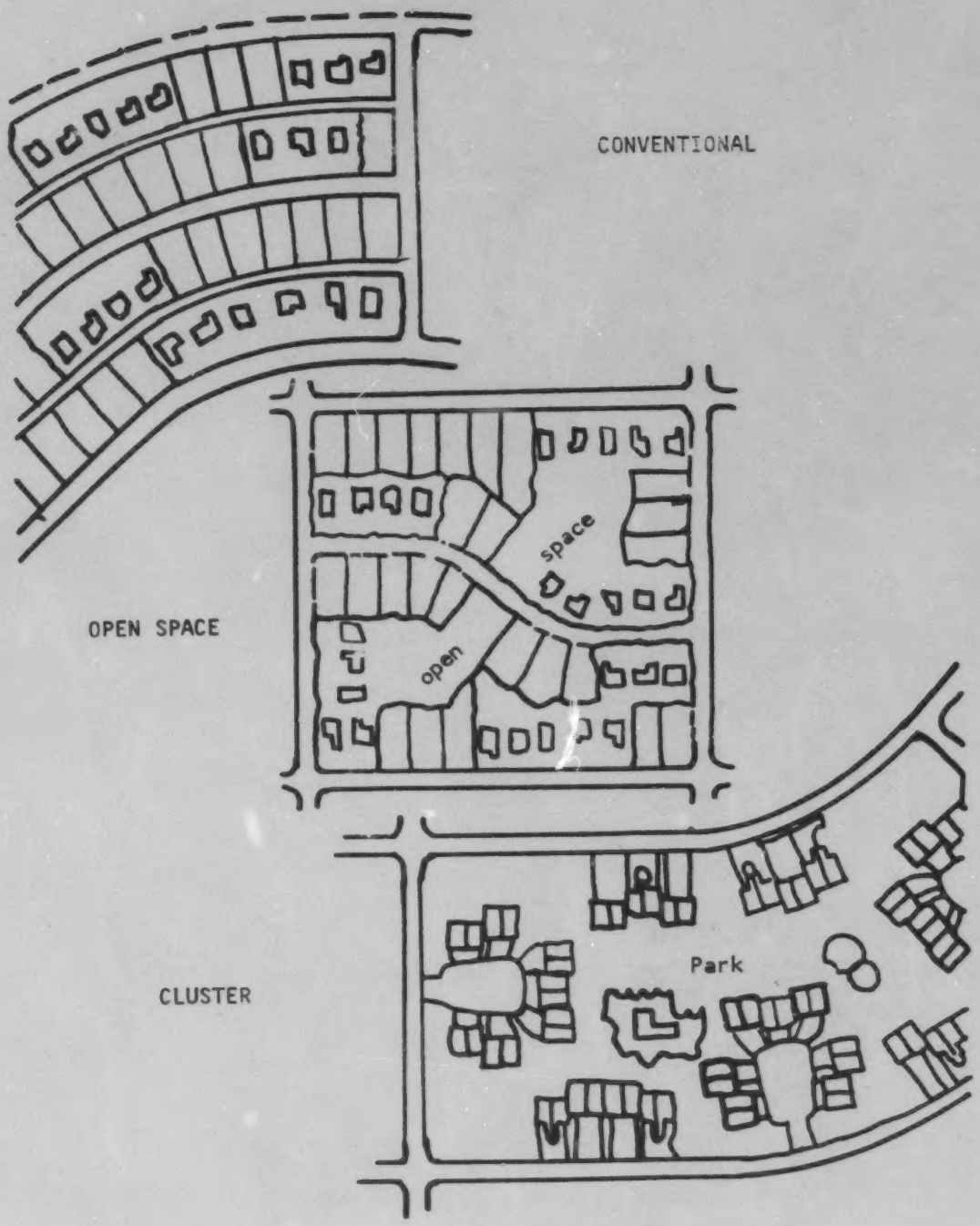
Commissioner of Health

Commissioner of Public Safety

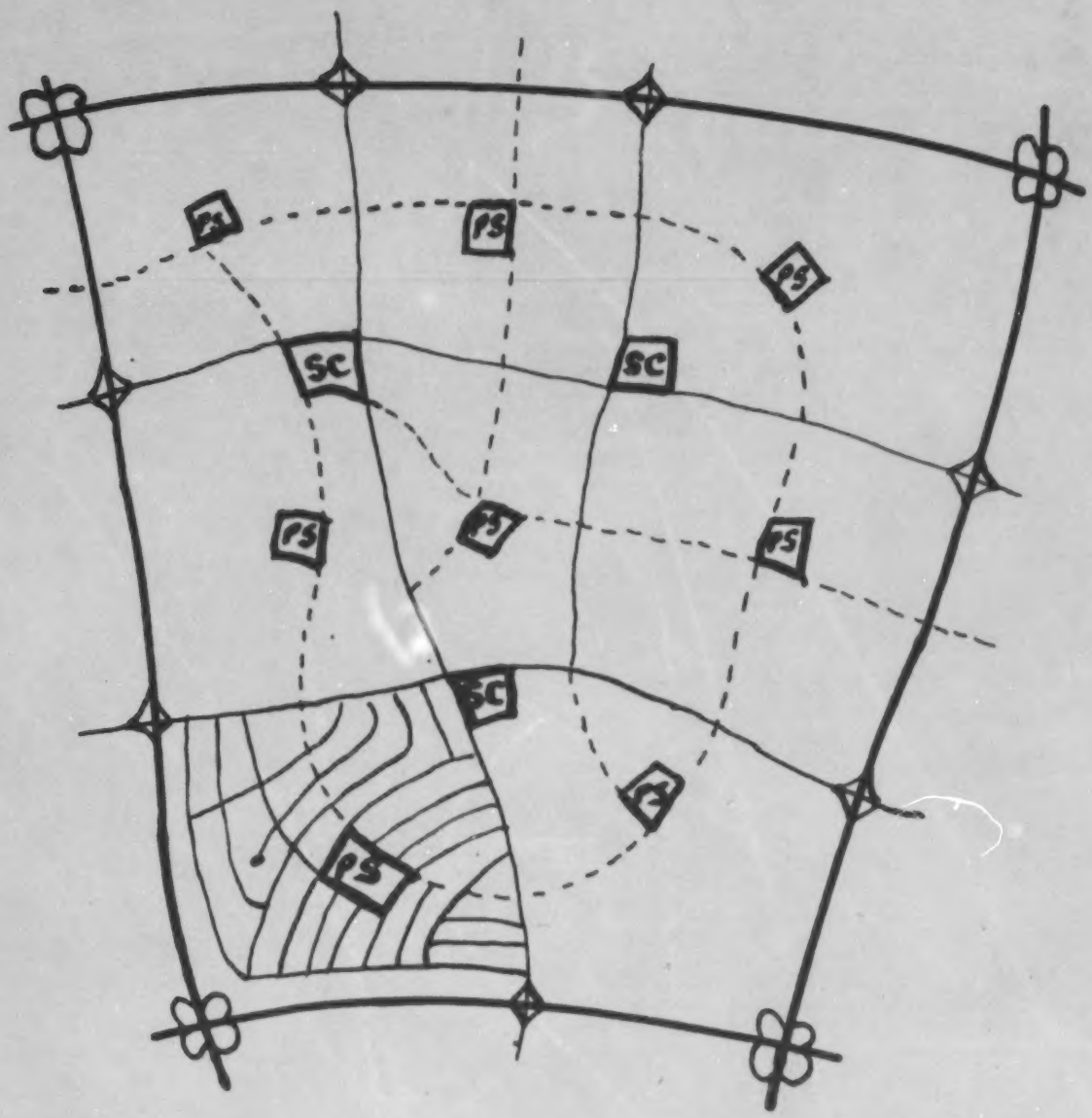
Commissioner of Public Works

The Board of Commissioners acts as a city council. It passes laws and administers city government.

RESIDENTIAL DEVELOPMENT PATTERNS



MODEL NEIGHBORHOOD STREET SYSTEM



SC Shopping Center

PS Park - School

Freeway
Major Street
Collector Street
Local Street

SELECTION AND USE OF AQUARIUM PLANTS

The large number of plant species available for aquarium use makes selection difficult. This Culture Leaflet offers a few suggestions that may guide the instructor in making a choice of plants for class aquaria.

Actually, the importance of plants to an aquarium has been greatly overrated. They are quite unnecessary for the culture and growth of most fish and invertebrates. Furthermore, unless the plants receive adequate light and are kept at a sufficiently high temperature, they will not contribute to the oxygen content of the water or otherwise benefit the aquarium. When conditions for growth are adverse, excess carbon dioxide and decomposition products can seriously interfere with the normal balance and activity of the aquarium. Unless light and temperature conditions permit the aquarium plants to photosynthesize above their compensation points for sufficient periods of time, they actually decrease the oxygen content and increase the carbon dioxide content of the water.

Direct, strong light is not needed for the growth of invertebrates and fishes. Therefore a school aquarium set up for studies on animals, or purely to retain living specimens in the laboratory, need not be illuminated nor furnished with plants.

One major misconception should be corrected initially--the "balanced aquarium" in the sense of an indefinitely sustained and self-contained equilibrium between plants and animals does not exist. The best we can do with an aquarium tank is develop a compatible environment in which the aquarium plants and animals may survive and grow for a long period of time with relatively little care or alteration of the environmental conditions.

There is also some misunderstanding as to the role of plants in the aquarium. Plants are not required to "oxygenate" aquarium water. If a quantity of water is exposed to the air, it will absorb oxygen from the air up to its saturation point at a given temperature. Oyxgen produced by plants over and above the saturation point merely goes out of solution into the air. Plants can, however, bring about a higher concentration of oxygen by removing carbon dioxide from the water during photosynthesis, which permits more oxygen to go into solution. The importance of plants is thus as carbon dioxide removers rather than as oxygen producers.

Wherever possible, natural waters in which plants and animals are living is to be preferred for aquarium use over tap water or that from other sources. This is especially to be considered when plants and animals are collected from local bodies of water and brought into the laboratory.

Ideal aquarium plants are those that tolerate aquarium conditions, have a high photosynthetic rate (light and temperature requirements being met) and do not require to be rooted in soil for normal growth. The use of soil in an aquarium is generally to be avoided because of the extra care required and additional problems involved in preparing the aquarium. Elodea (Anacharis), Myriophyllum, and Cabomba are all good aquarium plants--bushy, rapid growers that do not need to be rooted, and good carbon dioxide consumers.

Of rooted plants, Vallisneria and Sagittaria are best suited to aquaria. They can be rooted in gravel and do not require soil. In rooting, they should be carefully pushed down into the substratum so that the crown of the plant remains at the surface. They may be securely anchored with small lead weights, stones, or other heavy inert material, until they have secured themselves by root growth.

Vallisneria is generally tall and should be planted in the back of the aquarium and in large and relatively deep tanks. The Corkscrew Vallisneria, with twisted leaves, is a shorter form better suited for the smaller aquarium.

Sagittaria has wider leaves than Vallisneria. The typical species need space for normal growth, and should be separated by several inches from other plants and from the aquarium sides.

The members of the genus Cryptocoryne are narrow-leaved plants that do well in aquaria that are not in direct sunlight. They can stand a temperature range of 72° to 80° F and endure acid water. The typical variety, *C. willisi*, the one usually planted. Equally as good is the dwarf *C. beckettii*, which is a small glossy green species. Color may be added to the aquarium with *C. cordata* which has broad leaves that are red on the underside.

Some species of Ludwigia, the false loosestrife, are inhabitants of wet places and do well in the aquarium. The leaves vary from green to red in color.

Ceratophyllum, the hornwort, is an easily grown plant that does well under almost any aquarium circumstances. A species of Myriophyllum known as Parrot's Feather is a bushy plant with soft green feathery shoots that are very attractive. It is a rapid grower and usually does well in the aquarium.

The water fern Ceratopteris is one of the more interesting aquarium plants and can be either planted or floating. As it propagates at the leaf margins, it shows an interesting method of reproduction as well as being a satisfactory plant for aquaria. At times it may be difficult to get this species to adjust to aquarium existence and overpopulation should be avoided.

The use of algae in the aquarium leads only to trouble. Most of the coarse algae such as Cladophora and Pithophora do so well in the aquarium that they become pests. When these plants find their way into an aquarium it is usually necessary to start over again. It pays to discard all of the contents of the old aquarium as the algae will develop rapidly from the smallest portions that may be left behind. Slimy scums and foul odors may be produced by other algae that grow on the sides of the aquarium when there is too much light. Sometimes toxic materials harmful to other aquarium life will result. In these cases, the aquarium should be cleaned and the sides scraped with steel wool or a razor blade. It may be necessary to clean the aquarium with a 2% solution of HCl for thorough sterilization. After thorough washing with distilled or boiled water, the aquarium tank may be used again.

The only chemical control of algae in an aquarium that is recommended is the use of potassium permanganate (1 grain to 1 gallon of water). Used with care, this method

will open clear an aquarium of unwanted algae.

The complex green alga Nitella is an exception, as it is often profitably used in aquaria to form thickets for small fish and other fragile and defenseless species. Usually Nitella may be kept under satisfactory control.

Floating surface plants are not always desirable. In many cases such vegetation forms a heavy cover that serves no useful purpose and restricts gaseous exchange with the atmosphere. In special cases, such a cover may be desirable for protection of smaller forms, feeding of some other animals or for demonstration purposes and a source of the plants concerned.

Of the floating plants usually available, Lemna (duckweed) and Riccia (a liverwort) are the most satisfactory. These plants are usually rapid and satisfactory growers, and excess material can be readily removed if the cover becomes too thick. If both are used together, Lemna may tend to overgrow Riccia. At invervals during the year Lemna will appear to die out and disappear; however, in a few weeks it will return to its original or even greater abundance.

The use of Salvinia and Azolla, two water ferns, requires recognition of the fact that they are essentially plants of warm, relatively stagnant water. Planted in a relatively shallow aquarium with a high organic content and given adequate light and warm temperature they will do well. In a large, relatively sparsely inhabited aquarium that is well aerated and cool, either form will die out in a short time.

The selection of aquarium plants, whether rooted or floating, should be based on the use which is to be made of the aquarium, a consideration of the temperatures that will prevail, the other inhabitants of the aquarium, and the size of the tank. In all cases, avoid overcrowding, poor planting, and lack of cleanliness. Contamination, regardless of the source, should be dealt with immediately, before conditions deteriorate to the point where a complete reconstruction of the aquarium planting becomes necessary.

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.
P. O. Box 1712 Rochester, New York 14603
P. O. Box 1749 Monterey, California 93942

WARD'S

Culture Leaflet No. 19

AQUARIA IN THE SCHOOL LABORATORY

One of the most useful and interest-producing teaching aids for the school laboratory is a well-designed and satisfactorily operating aquarium. Many aspects of community relationships, feeding habits, predator relationships, and growth and development of both plants and animals can be observed and demonstrated. Interesting forms that would otherwise be studied only as preserved material or slide mounts can also be kept alive for periods of days or weeks.

It is not recommended that the school aquarium attempt the "balanced aquarium" concept, as the necessity for a fairly precise ratio of plants to animals and the need to leave the aquarium undisturbed does not allow the teacher to make full use of material at hand. It is more realistic to develop an aquatic environment to which many different plants and animals may be added and subtracted from time to time so as to use the aquarium as a teaching aid that may be constantly modified to accommodate the teaching program.

It is well to dispose at the outset of one major misconception regarding aquaria—the "balanced aquarium", supposedly the ideal of the aquarist, does not really exist. The theoretical ideal of an indefinitely sustained equilibrium between plants and animals in the restricted environment of an aquarium is impossible of fulfillment, as some sort of imbalance sooner or later occurs. Actually we should design our aquaria with the idea of providing a compatible environment in which the plants and animals in the aquarium may survive and grow for some weeks or months with little care or alteration of the environmental conditions, but we must realize that this condition cannot in the nature of things be permanent.

In planning an aquarium, it is well to consider at the outset that the larger the tank, within practical limits, the better for most purposes. Fishbowls, ornamental containers, battery jars, and small tanks of ten gallons capacity or less are generally useful only for short times for the display of one or a few specimens under rather unnatural surroundings.

The aquarium for the school laboratory should be at least of 15 gallons capacity, and usually one of 20 to 25 gallons capacity will be more satisfactory. The aquarium supplies section of Ward's Catalog offers a variety of sizes.

Regardless of the uses to which an aquarium may be put, satisfactory results nearly always demand some equipment in addition to just the tank. The teacher must be able to control evaporation, light, and temperature, both to prevent harmful wide fluctuations in environmental conditions and to manipulate these conditions for experimental uses.

To reduce evaporation, an aquarium cover is recommended. For lighting, it is best not to place the aquarium where it is dependent solely on natural daylight, which at a given location may be too strong, too weak, and will vary considerably from day to day. An aquarium illuminator is recommended so that both the intensity and the daily length of illumination may be regulated.

Certain aquarium animals are restricted in their temperature requirements and thrive only at certain temperature ranges. Some combination of heater, thermostat, and thermometer should be used for temperature control. Of course, the heater should be of adequate capacity for the size of the tank. Five watts of heater per gallon of tank capacity is a handy rule, e.g., a 75 watt heater for a 15 gallon tank. A heater fitted with an automatic thermostat is a great convenience, but a thermometer should also be used to check on the efficiency of the heater and for direct readings in keeping records of experimental set-ups.

A final piece of equipment that you will find useful is an aerator. This is an electrically powered pump that forces air through (usually) plastic tubing to an "air stone". The air stone is usually placed resting on the bottom of the tank in an inconspicuous location. The air stone is made of some porous material, natural or artificial, and its function is to break up the air stream into numerous tiny bubbles, which results in less agitation of the water and a greater surface of contact between the air passing through and the water. The aerator keeps the water in gentle motion throughout the tank, and the large air-water interface provided by the myriad of fine bubbles permits oxygen saturation to be quickly achieved and constantly maintained up to the limit imposed by temperature and the carbon dioxide concentration.

Because of the great variety and constant flux of aquarium aids on the market, and the necessity of making choices based on many variables, we have not suggested specific items here. A good source of information on available supplies is the aquarium section of Ward's Catalog. The descriptions of the items themselves will inform you of their varying capacity and applicability.

The use of filters is left largely to the teacher's preference. Filters are generally of value only when a particular aquarium set-up is to be left undisturbed for long periods of time. If an aquarium is being used for a variety applications, with changes of water, contents, and arrangement between, a filter is of less assistance. However, if an aquarium is re-arranged without a thorough cleaning, a filter may be of help in clearing the water of the detritus that will inevitably be stirred up.

In setting up an aquarium, the first thing to do is to decide what the aquarium is to be used for. If the purpose is to demonstrate reproduction or heredity in fish using some easily maintained species such as the guppy, a simple set-up will serve. A quantity of floating aquarium plant such as Elodea or Cabomba to serve as a carbon dioxide consumer and a shelter for the young fish is all that is required in the way of plants. Sand or gravel in the bottom of the tank is not essential but adds greatly to the appearance. A few snails, such as the red ramshorn, are interesting and attractive subordinate inhabitants of the aquarium, but are probably of little real value as scavengers; it is not likely that snails can control a really thick growth of algae on the glass, for example, while their own ejectements adds to the accumulation of organic waste in the tank.

Many fresh-water invertebrates may be kept in aquaria with little in the way of preparation. In these cases it is necessary only to be sure that predators are not present, that some suitable food is present or can be added, and that some vegetation, rooted or floating or both, is included to give the animals some sense of protection so that they can be better observed and their behavior more nearly normal. The general rule is, the simpler the better.

The source of water for the aquarium can cause problems. Sometimes tap water will do, particularly for tropical fish, snails, and most aquatic plants. The water should be allowed to stand for several days in non-metal containers before added to the aquarium. This will allow the chlorine to leave

the water and the temperature to adjust. If the water runs through copper pipes or if it is high in minerals the use of Water Conditioner Solution (Ward's catalog number 88 W 7100) is recommended, particularly for invertebrates. Natural pond or spring water is probably the best water for aquaria. Well water is often useful and is to be preferred over highly treated, additive-containing tap water.

The importance of plants to an aquarium has been greatly overemphasized, as they are quite unnecessary for the culture and growth of most fish and invertebrate species. Furthermore, unless plants receive adequate light and are kept at a sufficiently high temperature, they will rapidly become a detriment and a source of contamination. Too little light results in sickly, spindly plants if they survive at all; too much light promotes an over-growth of plant life. Extremes of temperature can be similarly destructive. The chief use of plants in an aquarium is esthetic.

There is much misunderstanding in regard to the "oxygenating" role of plants in an aquarium. Actually, plants are not required to "oxygenate" water. If a quantity of water is exposed to the air, it will absorb oxygen from the air up to its saturation point at a given temperature. Oxygen produced by plants over and above the saturation point merely goes out of solution into the air. Plants can, however, bring about a higher concentration of oxygen by removing carbon dioxide from the water during photosynthesis, permitting more oxygen to go into solution. (Carbon dioxide is more soluble in water than oxygen, and its presence reduces the ability of water to dissolve oxygen.) The chief importance of plants is thus as carbon dioxide removers. But in the dark, or under unsatisfactory conditions of light and temperature, the plants actually compete with the animals for the available oxygen and do more harm than good. Even in the best aquaria, whenever the aquarium is in the dark, the plants are consuming, not producing oxygen. An aerator, as mentioned above, keeps the water in gentle motion and provides a large air-water interface so that oxygen saturation is quickly achieved and constantly maintained, but no more than plants can an aerator "oxygenate" water above its saturation point.

Light, except very diffuse light, is unnecessary in an aquarium for the growth of invertebrates and fishes, and is needed in strength only for the welfare of plants. Under natural conditions, most animal forms are capable of living and feeding in fairly dark conditions, and is the preferred condition for the activity of many. Therefore, an aquarium set-up for the purpose of studies on animals, or purely to retain living specimens in the laboratory, need not be lighted.

There is, however, no doubt about the attractiveness of plants in an aquarium, or their necessity in simulating natural conditions. In planting an aquarium, simplicity is the key to success unless you are a real expert. Plants should be chosen for ease of growth, hardiness, and ability to stand fluctuating conditions (see Ward's Culture Leaflet No. 18). Easy-to-grow plants such as Elodea (Anacharis), Vallisneria, Cabomba, and Sagittaria are recommended.

Of the above, Elodea and Cabomba can be left free floating but Vallisneria and Sagittaria require to be rooted. The simplest method for rooting plants is to place two or three inches of average sized gravel on the bottom of the tank. Gravel that is too fine or too coarse should be avoided—a subjective evaluation but one that is really not too difficult! Before placing the gravel in the tank, it should be thoroughly rinsed to remove all silt and other fine particles that will tend to cloud the water. Add water to the aquarium to a depth of several inches and work the plants' roots down into the gravel. The plants can be held down by small lead weights, stones, or other heavy inert material until they have secured themselves by root growth.

Some rooted plants, more particular in their requirements, require soil for proper growth and cannot merely be rooted in gravel. This is especially likely to be the case in aquatic plants collected locally that are growing on muddy bottoms. You may wish to add such plants to your aquarium in an attempt to simulate a local environment, for features of their appearance or interest, or for some particular experimental purpose. In such event, one to one and a half inches of good rich garden soil should cover the bottom of the aquarium. Try to get soil that has not been recently treated with commercial fertilizers. The soil should then be covered with a layer of small rocks and a layer of clean sand. The sand should be thoroughly rinsed to remove all silt and dirt and then heated thoroughly, as by baking in an oven, to destroy any associated microorganisms. Cover the sand with a layer of gravel of an intermediate size, one that could neither be called fine or particularly coarse. This layer should have a depth of one to two inches and serve to stabilize the other components.

Place a piece of cardboard on the surface of the gravel, to prevent disturbance by water currents, and slowly pour water onto the cardboard, filling the tank to a depth of a few inches. If the bottom remains stable, continue to pour water until the tank is between 1/3 and ½ full. The plants may now be introduced by carefully working their roots into the bottom, repairing afterwards such disturbance as must be made of the surface layer. Do not place the plants too close together, as normal growth will soon fill the gaps. Use judgement in positioning the plants, placing your tall plants at the back and sides, with the smaller plants closer to the front and center. To the best of your knowledge, avoid plants that will become too large for your tank.

See Ward's Culture Leaflet No. 18 for additional remarks and information on aquarium plants.

The choice of plants and animals to go into an aquarium depends on the use that is to be made of the population. If tropical fish are to be used, the plants should be familiar aquarium plants that will survive the conditions required for tropical fish culture. If you are using native fish such as minnows, small sunfish, catfish, etc., the plants may either be "standard" aquarium plants or native aquatic plants collected from the same habitats that yielded the fish specimens. Many native aquatic plants do well in aquaria.

In adding fish, whether tropical or native, do not overstock the aquarium. A rough rule of thumb is one inch of fish (length) to one gallon of water. If more fish are added, trouble will develop sooner or later. Goldfish make very poor aquarium specimens, unless they are being used for specific purposes such as physiological or behavioral studies. As aquarium occupants, goldfish are generally uninteresting, dirty in they they constantly stir up the bottom and uproot the plants, and they also require considerable space.

Snails are usually added to aquaria to serve as scavengers (although their presence does not really seem to provide an effective control of contamination) and as subjects of interest for study. However, snails too must be selected with some care. Some fish attack snails and young specimens at least will be destroyed. Certain snails, such as the Striped Columbian Ramshorn Snail (sometimes available from dealers) are voracious plant feeders and unless provided with supplementary plant food will destroy aquarium vegetation. Some species are too shy or sluggish to offer much of interest. Other ramshorn snails, "mystery" snails, and common pond snails such as Physa and Lymnaea do well under most aquarium conditions and are about as interesting and attractive as any.

In feeding fish, several types of food may be used. Prepared dry fish food from a reputable source or manufacturer will serve as a basic diet for many fish and often will be consumed by other aquarium inhabitants such as some snails and tadpoles. For continued health, though, most fish need to have this diet supplemented with some live food. For this purpose, the white worm Enchytraeus is perhaps the most generally satisfactory. Small insect larvae may also be introduced. The brine shrimp, Artemia, may be used for many aquarium inhabitants provided care is used to wash all of the

salt from the Artemia before feeding. At times feedings of crustacea such as Cyclops and Daphnia will be helpful and mixed cultures of Protozoa such as ciliates and flagellates are often useful in feeding invertebrates and small fish. Feeding should be done at regular intervals, if possible at the same time of day, and small amounts rather than excess food should be supplied. It is less dangerous to underfeed than to overfeed, since the latter always results in decay of uneaten food and contamination. As far as practical, uneaten food should be removed after about half an hour after feeding with a suction pipette or similar device.

In all cases, regulation of the aquarium should strive to approximate natural conditions. Perhaps the most important single factor is temperature. For native fish and invertebrates, the temperature should not rise above 70° F and should remain between 65° and 70° F. For most tropical fish a temperature of 73°F is satisfactory. Lower than optimum temperatures usually result in less damage than excessively high temperatures. Of course, before initiating any aquarium operation, you will want to find out as much as you can about the environmental requirements of the species, both plant and animal, that are to be the inhabitants of the artificial environment.

In developing aquaria as teaching aids, experience and ingenuity are more important than any series of directions. Various environmental niches may be reproduced to some extent in the laboratory for periods of up to a few weeks by collecting material from a natural habitat and attempting to duplicate the habitat in the aquarium. As a teaching aid, a static aquarium set-up is of little value. Even the dullest member of the class will eventually tire of staring at tropical fish swimming back and forth. Aquaria may be used to hold specimens for experimentation, investigation of metamorphosis in frogs and other amphibia, demonstrating various types of ecological niches, and for performing experiments on predation, feeding habits, reactions to environmental stimuli, and as many other applications as the teacher's ingenuity will allow. Many aspects of biology may be demonstrated in an aquarium well planted with vegetation and stocked with a few minnows, tadpoles and frogs, and one small pickerel.

The above remarks apply, as is perhaps self-evident, only to fresh-water aquaria. A marine aquarium represents an entirely different set of requirements, challenges, and materials. You are invited to write to Ward's for currently available information on marine aquaria.

WARD'S

Culture Leaflet No. 21

SEED GERMINATION EXPERIMENTS

Seed germination studies offer an excellent opportunity for examining the early growth of plants and for investigating the effects of important environmental factors on plant growth processes. Certain conditions must be met before the germination of seeds will occur. The most important requirements are the presence of (a) water, (b) oxygen, and (c) favorable temperature; and sometimes (d) the presence or absence of light, depending on the species.

Most mature seeds contain less that 15% of water, an important factor in keeping the seed dormant. The protoplasmic and nutritive constituents of the seed are highly concentrated. Under these conditions, the physiological activity of seeds is reduced to the vanishing point.

For growth of the embryo to be resumed, water must be absorbed. It is not necessary to immerse the seeds in water for this purpose, and actually it is preferable not to do so (except for short periods as later described), since immersion limits the amount of oxygen available to the seed. Best results are obtained by placing the seeds in a moist atmosphere. Many seeds have a remarkable ability to absorb water and can obtain a sufficient supply from an apparently dry soil. Therefore, generally speaking, an air-dry soil will furnish sufficient moisture for germination.

The absorption of water by the seed does several things. If the seed coat contains hydrophilic colloids, they will absorb water, swell, and weaken, allowing the growing embryo to break through. If seed coats do not absorb water, the expansion of the tissues interior to the coats will break them. Water also provides a medium for the digestion of insoluble stored food materials in the seed. The availability of these materials for growth and metabolism is responsible for the increase in respiration that occurs during germination. Respiration is the oxidation of food and for this a supply of oxygen is needed. This is why moist air is a better situation for seed germination than immersion in water. Some seeds are known that will begin germination in the absence of oxygen, but few if any are able to complete the process under such conditions.

The third cardinal factor for seed germination is proper temperature. What constitutes an optimum temperature varies with the species, but in general terms, most seeds germinate readily between 25° and 30° C (76° to 86° F).

Light is an important factor in some cases. Many small grains, corn, and legumes will germinate as well in darkness as in light. Mistletoe and a few others will not germinate at all in the complete absence of light. Germination of some seeds (e.g., chives, garlic, some Liliaceae) is inhibited by light, but about 70% of all species investigated including grasses, require or are favored by light.

To provide materials for studying seed germination, Ward's offers a selection of twenty different seeds (Catal. no. *86 W 8000*). In addition, a special germination set *86 W 9200)* consists of five types of seeds selected to provide certain comparisons and contrast in modes of seed germination.

To see the earliest stages of seed germination and the appearance of root hairs, Ward's Seed Germination Chambers (*20 W 8200* and *20 W 8300)* are very convenient. Other experiments to investigate the effects of environmental conditions on germination and early growth are better carried out with the seeds planted in soil or sand in which normal growth and support of the seedling is possible. The Plant Science section of Ward's Catalog lists a variety of trays, plants, pots, and starters that are practical and convenient to use. The nesting plant trays (*20 W 5210* series) are the most generally useful for germination studies. Unless otherwise instructed, it may be taken for granted that the seeds are to be planted in any good potting soil, top soil, or light loam soil.

The importance and effect of water on the germination process may be demonstrated simply in the following way. Select seeds of one species and divide them into five groups of 10 or 20 seeds each. Soak the different groups of seeds in water for different periods of time as follows: (a) control, do not soak; (b) 12 hours; (c) 24 hours; (d) 48 hours; (e) 96 hours. In arranging the soaking periods start with the 96 hour period and work towards the shorter so that all the seeds can be planted at the same time. Plant them in clean dry sand to avoid complicating the situation with other factors such as fertilizer, type of soil, etc. Plant all of the seeds at the same depth, using a series of uniform containers to attempt to keep all environmental factors, except the time of soaking, the same for all. After planting, water the first container until the sand is wet, measuring the amount of water used. Then use the same amount of water for each of the other containers. At intervals throughout the experiment, water the germinating seeds so as to keep the surface of the sand moist, and being careful that all containers receive the same amount at each watering. For a period of 10 to 15 days, note the number of seeds that germinate in each group. By plotting the number of seedlings that appear against time and method of treatment, observations of some significant value may be obtained.

The relationship between moisture and seed growth may be demonstrated in a number of ways. By using a series of planting trays, seeds may pe planted in a variety of different substrates such as sand, peat, and top soil. Water in measured amounts may be added to some and not to others. In this way a series of experiments may be set up in which the student may be able to study rate of germination and subsequent rate of growth or cessation of growth in the seedling as influenced by moisture, type of substrate, etc. It must be remembered that available nutrients will also enter into such an experiment when different types of planting media are used.

The influence of temperature may be investigated by germinating seeds under various temperature-controlled conditions, as in refrigerators, controlled-temperature rooms, and laboratory ovens, where range of constant temperatures can be obtained, or by keeping a careful temperature record with a maximum-minimum thermometer. Comparison of growth at different temperatures and temperature ranges can be worked out.

Data on the role of light may be obtained by the use of darkness and graded degrees of illumination, both length and intensity, using artificial light and a timer. Experiments on length of day as related to growth may be carried out. Such experiments aid students in gaining an insight into the importance of environmental factors in determining plant distribution and practical economic botany. Very often it is profitable to state a problem and have the students work out a suggested experimental approach to the solution.

One of the most interesting experiments with seeds is that which shows the need for oxygen for germination and

growth, and the giving off of carbon dioxide in the respiratory process. A simple means of demonstrating this is here suggested.

The type of seed used is of little importance. Soak the seeds overnight in water to hasten germination. Soak an additional group of seeds in 10% formalin for the same length of time so that the embryos will be killed and germination will not take place.

The following morning, place a quantity (see below) of viable seeds and a similar quantity of dead seeds separately in the bottoms of two 100 ml burettes. Place a piece of moist cotton on top of each group of seeds to hold them in place. The cotton and seeds in each case should occupy the area between the bottom of the burette and the 100 ml mark. Then invert the two burettes over two large test tubes containing 10% potassium hydroxide. The burettes may extend down into the KOH solution for a short distance. In order to adjust the level of the KOH in the burette, open the stopcock of the burette so that the KOH solution rises to the zero mark on the burette. Close the stopcock. Upon completion of the set-up you will have two burettes containing 100 ml of air each and a small number of either germinating or dead seeds. Allow the set-ups to remain at room temperature for a few days.

As the experiment proceeds, the amount of oxygen used by the developing seeds may be observed by the rise of KOH solution in the burette. Since we are starting with an initial volume of 100 ml the results may be interpreted in approximate percentages. This type of procedure may also be used to compare respiratory rates in different species of seeds, and in seeds that have been retreated in various ways.

In determining the release of carbon dioxide, methods that are also applicable to many small aquatic animals may be used. The apparatus consists of a small mouthed laboratory bottle with a capacity of between 500 and 1000 ml. Place limewater in the bottom of the bottle to a depth of about 1½ inches.

Choose seeds such as wheat and disinfect to destroy all microorganisms by placing the seeds in a 5% Clorox solution for 10 minutes (to make a 5% Clorox solution, place 5 teaspoons of Clorox in 2 cups of water). Soak seeds overnight. Take a teaspoonful of seeds, place loosely in cheesecloth, and suspend in the bottle over the limewater. Stopper the bottle effectively air tight. After 48 hours, shake the bottle to mix the air contained therein with the limewater. The presence of carbon dioxide will be indicated by a white precipitate. A control may be set up in exactly the way but omitting the seeds.

Measurement of respiration based on the loss of weight is theoretically possible but difficult to carry out in practice. However, a satisfactory class demonstration can be made by using germinating seeds of rather large size, such as peas, beans, or corn. Treat seeds as previously indicated including sterilization to remove microorganisms. By careful weighing before and during germination, it can be shown that germinating seeds can and do lose weight.

Production of heat represents another measure of respiratory activity. Plants with a high metabolic rate, such as germinating seeds, will give off easily detectable amounts of heat. This may be demonstrated by placing two identical quantities of germinating, sterilized seeds and dead sterilized seeds in separate thermos bottles. In the case of the living germinating seeds the temperature will rise as high as 40° to 45° C, while the dead seeds will remain at the normal room temperature of about 22° C. The thermos bottles should be plugged with tight-fitting cork stoppers through which a thermometer has been inserted. In this way the thermometers may be read without opening the thermos bottles. All connections should be air tight.

Reference to texts and laboratory manuals of plant physiology will provide many refinements of the basic investigations suggested here as well as many more sophisticated experiments using various chemical and physical techniques. The experiments in this leaflet are intended to present simple demonstrations of some of the most basic factors in seed germination.

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.
P. O. Box 1712 Rochester, New York 14603
P. O. Box 1749 Monterey, California 93942

WARD'S

CULTURE OF BACTERIA AND MOLDS IN THE CLASSROOM

This leaflet provides a brief outline of procedures and techniques by which even the beginner can successfully grow and maintain pure cultures of bacteria and molds. Methods of working with the cultures is covered in Part I; Media is discussed in Part II.

PART I. GENERAL TECHNIQUE

CAUTION. Do not work with pathogenic (disease-causing) organisms unless you have had sufficient training and experience in their handling. Treat all bacteria as being pathogenic, both to establish proper work habits and because of the chance (however small) of a culture inadvertantly becoming contaminated by a pathogen.

1. Sterilization
   a. Media and glassware: Use an autoclave or pressure cooker at 15 lbs. for 15 min. (121°C, 250°F).
   b. Glassware: Dry heat in oven at 160°C (320°F) for at least two hours.
2. Wear a clean lab coat, smock, or apron to protect clothing and to reduce possible contamination of cultures.
3. While in the lab, avoid any hand to mouth operations, such as eating, smoking, or licking adhesive labels.
4. Wash hands thoroughly with soap and water, both before and after working with cultures.
5. Keep work surface clear of any unnecessary objects (i.e., books, purses, etc.).
6. Wash work surface with a capable disinfectant, such as 5% Lysol or 70% alcohol, both before and after working with cultures.
7. Culture transfers
   The only articles of equipment needed to make a transfer from the initial culture to a tube of sterile medium are a Bunsen or similar gas burner, and an inoculating loop or needle.
   a. Hold both tubes in the left hand (fig. 1).
   b. With the needle in the right hand, pass the entire length of the wire through the flame until it has all been red hot (fig. 2).

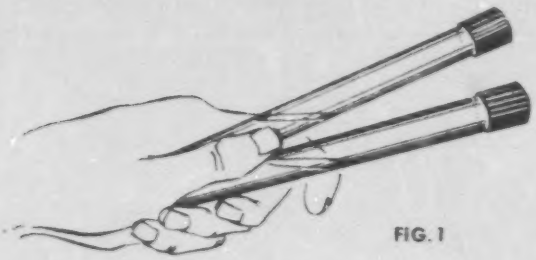


FIG. 1

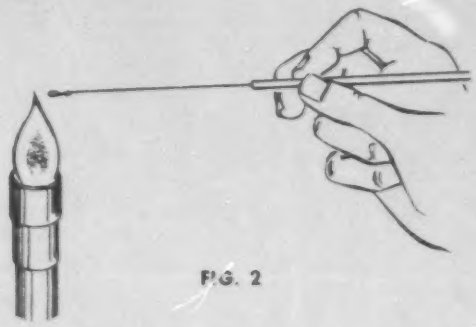


FIG. 2

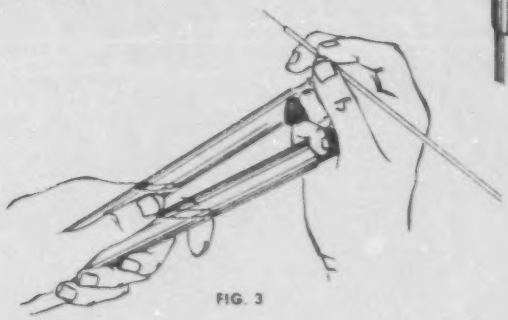


FIG. 3

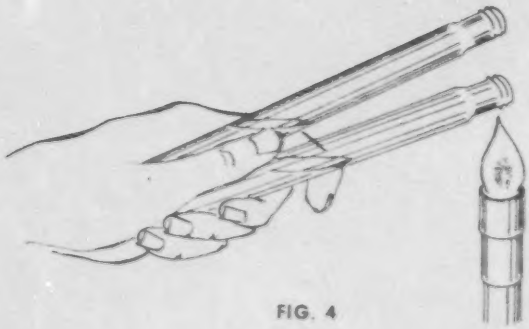


FIG. 4

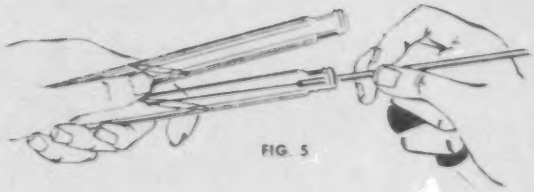


FIG. 5

c. While still holding the needle, QUICKLY remove the caps or plugs from the tubes, holding them between the fingers of the right hand (fig. 3). Flame the mouths by passing them two or three times through the burner flames (fig. 4). Hold these tubes almost parallel to the table top if they contain a solid medium, or at a slight angle if they contain a broth. This will reduce the possibility of air-borne contaminants.

d. Touch the needle to the medium in the culture tube to be sure it is cooled, and then to the culture mass. Apply the needle to the sterile medium in the other tube (fig. 5). (This may be either by streaking the surface of a slant, making a stab into a semi-solid media, or swirling the needle in a broth.) It should be noted that it is not necessary to attempt to remove a large volume of the culture mass with the needle. A slight touch will place more than enough on the needle to make the inoculation.

e. Flame the mouths of the tubes and cap them.

f. Flame the needle.

g. If petri plates are used, place them on the table and lift the cover only enough to maneuver the needle when inoculating.

8. If screw cap culture tubes are used, the cap should be kept loose to allow the aerobic cultures to get oxygen. (Most common bacteria and molds fall into this category.

9. If cultures are to be kept for an extended period, however, they should be sealed tightly to prevent dehydration of the media, and then refrigerated to slow the metabolic processes of the organisms.

10. Discarding cultures
    a. Autoclave.
    b. Discard contents of containers. (Note: Do not dump melted agar down the drain. It may solidify and block the flow.)
    c. Wash the glassware in hot water and rinse well.

11. Broken culture containers
    a. Pour disinfectant on all broken glass and contaminated surfaces.
    b. Let this remain undisturbed for at least 30 min.
    c. Carefully pick up all glass or residue and place in a container provided for the purpose; incinerate.
    d. Disinfect area and wash hands thoroughly.

The recommended medium and the optimum temperature for each bacteria and mold are given on the tubes of the cultures supplied by Ward's. THE ABOVE MENTIONED TECHNIQUE IS USED FOR ALL BUT THE FOLLOWING MEDIA:

1. Physarum polycephalum (85 W 4750) and P. gyrosum (85 W 4745) plasmodium. These are supplied in a large test tube with a slant of plain agar and a few added grains of uncooked oatmeal. The best method that we have found at Ward's for culturing these slime molds is to use a moisture chamber.
    a. Place a 150 mm. dia. petri dish half face up in the center of a large piece of coarse or "rapid" grade filter paper.
    b. Wrap the filter paper around the dish.
    c. Invert this inside a large (8-1/4" x 3-1/4") culture bowl to form a platform.
    d. Add distilled water to a joint just below the top of the platform.
    e. Using a small spatula or similar piece of equipment, lift an oat grain which is covered with the yellow or pink (depending on species) plasmodium. If the plasmodium is wandering from the oats in the tube, a fresh oat grain may be placed in contact with the mass, and it will soon be covered.
    f. Place several of these encrusted grains in the center of the moisture chamber.
    g. Cover the chamber with either another culture bowl or piece of glass.
    h. As the plasmodium begins to wander and abandons the oat grains, remove them and place fresh ones in contact with the advancing plasmoidal front. Moisten each grain with a drop of water from the chamber.
    i. Fresh cultures should be started on a weekly basis.
    j. It is extremely important that the oatmeal used be the uncooked variety (i.e., "Old Fashioned," not "Minute" oats.
    k. The temperature is also of vital importance. It should be kept as close as possible to "room temperature," 22° C (72°F).

2. Physarum polycephalum from dried sclerotium (85 W 4751).
    a. The orange-colored incrustations on the slips of filter paper are the sclerotial stage of Physarum polycephalum. To activate the Physarum, prepare a moisture chamber as described. However, after moistening instead of adding water to a point just below the top of the plate, drain off the excess water and add a dropper full of distilled water daily to prevent drying.
    b. Place a piece of the sclerotium (sclerotial side up) in the center of the moisture chamber's platform and contact with three flakes of uncooked, rolled oats. Cover the dish and keep at room temperature. The dish should not be exposed to direct sunlight. Within 24 hours the plasmodium should have become active and will be seen to be crawling over the oats. As the plasmodium advances from the initial oat food, new flakes should be placed in its path. At this stage the instructions for the culture of the plasmodial stage can be followed.
    c. As only a small piece of sclerotium is needed to start the culture, the other pieces can be kept for future use at room temperature or placed in the refrigerator for longer viability.
    d. All of these slime molds are, of necessity, grown in the presence of certain bacteria and molds. Experience has shown that, if kept in a pure state, the Physarum sp. do poorly. Thus, it is not necessary (in fact, it is undesirable) to use completely sterile techniques in the culturing of these organisms. Occasionally, some undesirable molds will be seen to be growing on oat grains which the Physarum has abandoned. This can be easily controlled by removing the contaminated material.

3. Saccharomyces cerevisiae (Brewers Yeast) (85 W 5000).
    a. This culture is supplied in a tube of liquid medium. It is the only yeast present, although there may be some bacteria in the culture.
    b. An excellent medium may be made for the growth of this organism through following this formula:

Glucose	40g
Peptone	5g
Yeast extract	2.5g
$(NH_4)_2SO_4$	5g
KH_2PO_4	2g
$CaCl_2 \cdot 2H_2O$	.34g
$MgSO_4 \cdot 7H_2O$	.5g
Sodium lactate, 60% Merck	6ml.
Distilled water	1000 ml.

4. Saprolegnia sp. (85 W 5050)
    a. The following solid medium is recommended by the American Type Culture Collection for the culturing of Saprolegnia ferax:

    Blend 50 gm of water-ground white cornmeal in 1 liter of tap water. Let stand over-night in refrigerator. Add 7.5 gm of agar and heat at 60°C for 1 hour. Add 50 ml. of soil extract. Raise pH to 6.8-7.0 with Ca_3CO if necessary.

    b. Dispense in 4 or 5 ml. portions, including some solid meal in each tube. Autoclave for 25 min. at 15 psi. (Heat and cool gradually to avoid bubbling

up in tubes.) Slant.

c. If a liquid medium is desired, the simplest way to grow Saprolegnia is by inoculating it into autoclaved distilled water containing a few sterilized rice grains.

5. Sexual reproduction of Rhizopus nigricans (85 W 4900 and 85 W 4901).
   a. Using Sabouraud dextrose agar or potato dextrose agar in a petri plate, inoculate plus and minus strains on opposite sides of the agar. Be careful not to mix the two strains when inoculating.
   b. A line of mature zygospores should result within a few days in the center of the plate where the hyphae of opposite strains have met.

PART II. MEDIA

Culture work is simplified by using Ward's prepared media, available in slant tubes, deeps, and 125 ml. bottles. Solid media are also available plated in 4 oz. prescription bottles (a Ward's innovation) which combines the large surface area of a petri plate with the ease of culture tube handling.

Certain media, due to the nature of the solidifying agent (coagulated protein), cannot be handled like the agar base media. These are supplied only in the slant and plated forms. Other agar-based media are of the semi-solid type and are available only in tubes and bottles.

Ward's media in bulk containers (bottles & deeps) may be distributed into petri dishes by the following method:

1. Use aseptic technique as outlined under Part I.
2. Arrange the number of petri dishes required (15-20 per bottle of medium) on the work area.
3. Remove the seal and loosen the cap on the bottle slightly.
4. Place the bottle in a large beaker. Pour water into the beaker until it is slightly above the level of the medium in the bottle.
5. Place a thermometer in the beaker. Heat the water, using a burner or hot plate until it boils.
6. Boil gently for several minutes until the medium is completely liquified. This can be tested by swirling the bottle slightly.
7. Turn off the heat and allow the temperature of the water bath to drop to between 45° and 50°C (114° – 122°F.)
8. Pick up the bottle; remove the cap, and flame the mouth of the bottle.
9. Lift the lid of the petri plate just enough to admit the neck of the bottle.
10. Pour the first petri plate, using just enough medium to slightly more than cover the bottom of the plate. Replace the lid.
11. Swirl the plate slightly to distribute the agar.
12. Immediately flame the mouth of the bottle and pour plates as needed.

* * * * * * * * * * *

If additional information is required, it is recommended that any good text or lab manual on the subject be consulted. The following are only a sample of what is available:

1. Alexopoulos, Constantine, *Introductory Mycology*. New York: John Wiley & Sons, 1952.
2. Breed, Robert S; Murray, E.G.D.; Smith, Nathan R. *Bergey's Manual of Determinative Bacteriology*. Baltimore: The Williams & Wilkins Co, 1957.
3. Pelczar, Michael J., Jr.; Reid, Roger D. *Microbiology*. New York: McGraw-Hill, 1958.
4. Seeley, Harry W., Jr.; Vandemark, Paul J., *Microbes in Action*. San Francisco: W.H. Freeman & Co., 1962.
5. Society of American Bacteriologists, Committee on Bacteriological Technic (M.J. Pelczar, Jr., Chairman) *Manual of Microbiological Methods*. New York: McGraw-Hill Book Co., 1957.
6. Sussman, Alfred S. *Microbes: Their Growth, Nutrition, and Interaction*. (B.S.C.S. Lab Block). Boston: D.C. Heath & Co., 1964.

WARD'S

Culture Leaflet No. 20

USE OF TERRARIA IN THE SCHOOL LABORATORY

The terrarium as a teaching aid may be a vital means of awakening interest in biology, as well as having practical teaching applications, for the terrarium is a means of focusing attention on a microcosm of animal and plant life. Unfortunately, all too often what passes for a terrarium is some type of container holding a few ill-assorted plants or discouraged-looking reptiles. Actually, by using care in the organization of the terrarium and the selection of its occupants, the terrarium can provide both knowledge and pleasure.

Almost any sort of container with transparent sides may be made into a terrarium of some sort--a large jar, an aquarium tank, a small cage--but specially designed and constructed terraria are usually the most satisfactory (Ward's No. *21 W 1710* series). Such terraria are built with a slanted glass front that gives it a variation in height from front to rear. A water-tight metal frame provides strength and permits a variety of habitat set-ups to be made. A choice of sizes is available.

Of course, terraria may also be constructed at home or in the school, with or without student help. Various types of pans or trays can serve as the base. Frames may be made of wood or light metal such as aluminum stripping while transparent sheet plastic is useful to cover the terrarium. This method permits the teacher to have terraria of various shapes and sizes not commercially available, which may be desired for special purposes. The use of plastic or cellophane sheeting of various colors can be used to test the response of plants and animals to different parts of the visible spectrum. (Colored cellophane can of course be used for the same purpose with commercially-built glass terraria.) Many dark-active animals are insensitive to red light and the use of red plastic or cellophane permits such animals to be observed as they carry out their usually nocturnal activities undisturbed by the observer.

TERRARIA FOR ZOOLOGY STUDIES

Representatives of certain animal groups are suited for study in various terrarium situations.

Amphibians usually do well in terraria if a few simple conditions are met. A layer of soil should be placed on the bottom of the terrarium, and this should be woods soil or some equally soft soil mixed with a few leaves and fragments of bark and wood. The soil should be sloped or hollowed out to provide a small area of standing water, to be held in a small dish, its edge flush with the soil surface. Small woodland plants, planted in the soil of the terrarium, provide an attractive and natural setting.

For typically terrestrial amphibians such as the common lungless red-backed salamander *Plethodon cinereus*, a few pieces of broken tree branches of sufficient size to form a place for cover is desirable. Toads will often burrow in the soil or take cover beneath leaves and sticks and may be seen with just their snout and eyes showing. The general environment should be moist without being actually wet; a humid atmosphere is essential to the normal respiratory activities of these amphibians.

The feeding of amphibians is always a bother. Some will eat small earthworms and mealworms, others will catch flies and other moving objects, and liver may be fed if necessary. However, most of these creatures will not eat anything that does not move, so if bits of meat or liver are used, they must be moved in such a fashion as to simulate a living insect; this does not always seem to be successful and the animal may refuse to take the "bait" no matter how artfully it is agitated. Of course, any such material not eaten must not be allowed to remain in the terrarium.

The "wingless" mutant of the fruit fly Drosophila has been recommended as a good live food for small insectivorous amphibians and reptiles and might be tried. It can be raised in colonies in large numbers with frequent generations, and while the adults can walk actively, their greatly reduced wings prevent them from flying.

Certain reptiles make valuable terrarium inhabitants. In general, the most satisfactory reptiles for general observation are horned toads or other xeric reptiles. The soil should be sandy and dry, at least five or six inches deep, as these lizards like to burrow. Some burrowing activity is a response to temperature fluctuations and will occur if the temperature is too low or too high. (Temperatures in the seventies (F) are generally satisfactory.) They also burrow for concealment when alarmed. These species should be provided at all times with water, placed in shallow dishes flush with the surface of the sand. This will enable the lizards to drink when necessary.

It is not necessary and often undesirable to place cacti and other desert plants in the terrarium, although when first set up they are very attractive. However, the plants are often disturbed and overturned by the reptiles in their feeding and burrowing activities.

Horned toads and other arid-land lizards require food of considerable variety. They will feed on a variety of walking insects and other Arthropoda, including sow bugs, and the horned toads are especially partial to ants. Many of these lizards will consume mealworms, but an exclusive diet of mealworms will eventually prove fatal.

Finally, these desert lizards should be treated with care, and rapid movements around the terrarium avoided. They are shy creatures and can be best observed at a distance of about ten feet from the terrarium.

Other types of lizards generally do not do well in terraria, either because of the difficulty of providing a sufficiently accurate re-creation of their natural habitat or the inability to provide proper food. The American Chameleon or Anolis lizard is often available from pet dealers and can be kept for various periods of time. They can be maintained in a terrarium that includes a few leafy plants for them to crawl on. While they will eat mealworms, a better diet is fruit flies and other small flies that can be introduced into the terrarium. The wingless Drosphila may be helpful in this application.

Other types of lizards may be maintained for a time on mealworms and cockroaches.

Certain small snakes are suitable for the woodland type of terrarium. Such species are the ring-necked snakes (*Diadophis* sp.), DeKay's snake (*Storeria dekayi*), and the red-bellied snake (*Storeria occipitomaculata*). Any of these may be kept in a typical woodland environment with a small dish of water and a large enough area for the snake to coil up in. Food may be supplied in the form of mealworms, cockroaches, earthworms, and other miscellaneous small insects.

Larger snakes require too much space and their diet and general care are too difficult for the average school laboratory.

Other reptiles do not lend themselves readily to terrarium life. Turtles are often regarded with affection but show few interesting activities in captivity and are generally not suited to the terrarium. Most of the land-dwelling species are too large except when very young. The aquatic turtles or terrapins are best kept in an aquarium suited to their size, containing a few inches of water and a place where they can crawl out of the water and sun themselves. However, no reptile should be placed in direct sunlight without a shaded area to which it can retreat should its body temperature become too high.

For reasons which should be self-evident, vertebrates other than reptiles and amphibians are not suited to terraria.

Many invertebrates can be established in terraria. Ants are sometimes used, although they can be better observed in one of the more specialized "ant nests" that are commercially available, such as Ward's No. *14 W 7510* and *14 W 7520*. Surface living woodland arthropods and mollusks, such as various beetles, millipedes, land snails, and slugs, will live satisfactorily if placed in an environment as nearly natural as possible, preferably material collected from the same site as the specimens. The habitat materials usually supply these creatures with sufficient food for some time, and the use of supplementary food materials is usually not practical.

TERRARIA FOR BOTANY STUDIES

The use of the terrarium for the observation and culture of many plant associations of small size is an interesting biological activity. Typical bog-like and marsh environments may be set up in the terrarium and will last for a considerable part of the school year.

Liverworts, mosses, and small ferns may be kept indefinately in well organized terraria. They require fairly high humidity and moderate light intensities (avoid strong light). The occasional use of nutrient (fertilizer) solution is recommended. Such a terrarium can be developed by obtaining soil and humus from a woody area, preferably from where the specimens were collected, or from any such typical moss-fern habitat if using purchased specimens. Enough water should be present to produce the normal damp condition, and the terrarium kept covered to insure high humidity. However, the plants, particularly thallose liverworts such as Conocephalum, should be watched carefully to prevent the growth of mold resulting from too high a humidity. Humidity may be controlled by raising the cover of the terrarium slightly for a few hours during the day.

Under these conditions, small moist woodland plants will survive and show some growth throughout the year. For details on the culture of specific plant study types and the use of nutrient solutions, see the appendix to H.C. Bold's very useful *Morphology of Plants*, published by Harper & Row, New York, 1957.

Terraria may also be profitably used for maintaining the interesting insectivorous plants, Venus's-flytrap, pitcher plant, and sundew. The bottom of the terrarium should be filled with a mixture of sphagnum moss and either sand or vermiculite. The plants may be rooted in this mixture and the terrarium placed where it will receive some sun. Under these circumstances, the plants should do well and even produce flowers. In the case of all, the amount of sunlight will determine the depth of color in the leaves. In subdued light, the leaves of all three will be a light green; in strong sunlight reddish hues appear in various patterns. Insects may be placed in the terrarium with the plants and the insect-catching activity of the plants observed.

Small cacti and other desert succulents can make an attractive desert terrarium although as mentioned earlier, it is better here not to attempt to combine plants and animals. The terrarium can be filled to a couple of inches with some good light soil, the plants rooted, and the soil then covered with a thin layer of white or tinted sand for esthetic effect. Water sparingly and infrequently but regularly. However, such a set-up is generally more useful for its decorative value than as representing any actual ecological facies.

The use of the terrarium with plants is generally restricted to suggesting certain types of small-scale ecological conditions and associations. For the general raising of plants for other uses, conventional methods of pot and field culture are best.

GENERAL SUGGESTIONS ON PROCEDURE

As permitted by the limitation of space inside the terrarium, almost any sort of natural habitat can be represented. Bog, moist woodland and desert are usual types more or less successfully recreated in the terrarium. In the inevitable appeal of the exotic, do not neglect the possibilities inherent in local ecological facies. The terrarium can become a useful tool for learning and teaching more about the natural history of your own locale. Naturally, the more you know about the ecological requirements of specific plants and animals, the greater your chances of success. The number of variables is so great that this Leaflet can do no more than hint at a few basic principles that you can underly your efforts, and on which you can build a number of activities based upon your own knowledge and skill and the resources available to you.

WARD'S NATURAL SCIENCE ESTABLISHMENT, INC.
P. O. Box 1712 Rochester, New York 14603
P. O. Box 1749 Monterey, California 93942

Lesson Plan - Student Activity

FORESTRY

Rationale: This activity is designed to provide the student with first-hand experience in the area of forestry. When combined with a tree planting experience, plus an exposure to some basic management technique, such as pruning and thinning, the student should be able to grasp the idea of what a forester does.

In order to understand a forest community the forester should know certain things about it, such as: (1) the number of each kind of tree (species) in the area, (2) how fast the trees are growing, (3) how much wood (in board feet) is contained in the trees, and (4) how healthy are the trees (evidence for disease and insect damage).

Materials:

compass	heavy cord
stakes	measuring tape
string	

The Action:

1. Small group or class activity.
2. "Cruising" Timber. This refers to taking a sample of the timber growing on an area by measuring trees on each of a series of 1/5 acre plots along a "cruise line" projected by a compass. These cruise lines are located at certain intervals in order to provide a good cross-sectional sample of the timber on the area. (see illustration - Figure 1).

   a. Draw or obtain a map of the area to be cruised. Locate the cruise lines and plots on the map as shown in Figure 1.

   b. Using an old tape measure such as used in tailoring and sewing, construct a diameter tape as shown in Figure 2.

   c. Construct a "chain" of 66' in length using a rope or clothesline. (the surveyor's chain is 66' in length)

   d. When measuring the trees on the sample plot, the cruisers move clockwise, measuring the trees over 5" in diameter. Any tree more than half outside the plot is not counted.

e. For each tree measured, estimate the number of 16' logs in each tree.

f. Record the information form "d" and "e" in a table as shown in Figure 3.

g. You do not count any logs below 8" at the smallest end as saw timber. This is recorded as cordwood. (see table 2).

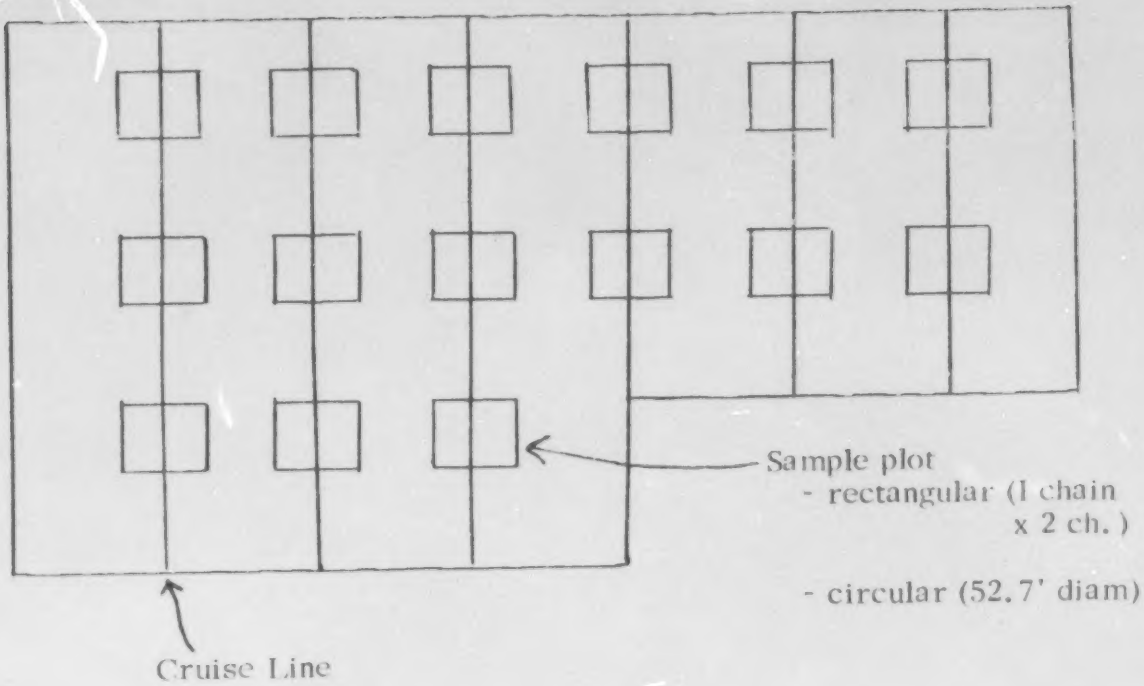
h. The volume in board feet may be obtained by using Table 1.

i. Calculate the total volume of saw timber and cordwood on the timber tract. Do this by determining what percent of the total volume was actually sampled, then converting to the total volume.

j. If the local forester is available for assistance, an increment borer (instrument) may be obtained for the purpose of determining ages of the trees. This could be included in the tabulation of data.

k. If a permanent plot can be established, growth rate studies, etc. can be carried out over a period of several years. The local forester can be of assistance in this case.

(Locating the Cruise Lines)

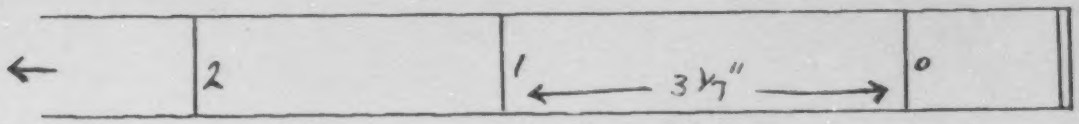


Cruise lines are separated by an interval of 132' and plots are located on the cruise lines at 132' intervals. (Two chains intervals).

Figure 1

(Constructing a Diameter Tape)

Using the back of an ordinary tape measure, mark off intervals of 3 1/7" as shown.



Every 3 1/7" on this tape equals 1 inch of diameter. This tape will be placed around the circumference of the tree at 4' above the ground (breast height). This measurement will be the diameter at breast height (DBH).

Figure 2

(Tally Sheet)

Tree Number	Species	DBH	Age	No. of 16' logs	Comments (Disease, insects, etc.)

Volume in Board feet

1. _____
2. _____
3. _____
4. _____

Total Vol. _____ Board feet

Figure 3

Table I

SAWTIMBER VOLUME TABLE *Scribner Rule* *

DBH Inches	VOLUME IN BOARD FEET BY NUMBER OF 16 FOOT LOGS										
	1	1½	2	2½	3	3½	4	4½	5	5½	6
10	28	36	44	48	52	.....	.....	.....	.....	.....	.....
11	38	49	60	67	74	.....	.....	.....	.....	.....	.....
12	47	61	75	85	95	100	106	.....	.....	.....	.....
13	58	76	94	107	120	128	136	.....	.....	.....	.....
14	69	92	114	130	146	156	166	.....	.....	.....	.....
15	82	109	136	157	178	192	206	.....	.....	.....	.....
16	95	127	159	185	211	229	247	.....	.....	.....	.....
17	109	146	184	215	246	268	289	.....	.....	.....	.....
18	123	166	209	244	280	306	331	.....	.....	.....	.....
19	140	190	240	281	322	352	382	.....	.....	.....	.....
20	157	214	270	317	364	398	432	459	486	.....	.....
21	176	240	304	358	411	450	490	523	556	.....	.....
22	194	266	338	398	458	504	549	588	626	.....	.....
23	214	294	374	441	508	558	607	652	698	.....	.....
24	234	322	409	484	558	611	665	718	770	.....	.....
25	258	355	452	534	617	678	740	799	858	.....	.....
26	281	388	494	585	676	745	814	880	945	.....	.....
27	304	420	536	636	736	811	886	959	1,032	.....	.....
28	327	452	578	686	795	877	959	1,040	1,120	1,190	1,261
29	354	491	628	746	864	953	1,042	1,132	1,222	1,306	1,389
30	382	530	678	806	933	1,028	1,124	1,224	1,325	1,421	1,517
31	411	571	731	871	1,011	1,117	1,223	1,328	1,434	1,541	1,648
32	440	612	784	936	1,089	1,206	1,322	1,432	1,543	1,661	1,779
33	469	654	838	1,001	1,164	1,289	1,414	1,534	1,654	1,783	1,912
34	498	695	892	1,066	1,239	1,373	1,507	1,636	1,766	1,906	2,046
35	530	742	954	1,141	1,328	1,473	1,618	1,757	1,896	2,044	2,192
36	563	789	1,015	1,216	1,416	1,572	1,728	1,877	2,026	2,182	2,338
37	596	836	1,075	1,290	1,506	1,670	1,835	1,998	2,160	2,324	2,488
38	629	882	1,135	1,366	1,596	1,769	1,942	2,118	2,295	2,466	2,637
39	666	935	1,204	1,449	1,694	1,881	2,068	2,251	2,434	2,616	2,799
40	703	988	1,274	1,532	1,791	1,993	2,195	2,384	2,574	2,768	2,961

* This table gives average volumes. Actually, volume of individual trees varies by species and site conditions. Local forester may have more accurate tables to fit local conditions.

Table II

CORDWOOD VOLUME TABLE *

DBH Inches	VOLUME IN CORDS—TOTAL HEIGHT IN FEET							
	30	40	50	60	70	80	90	100
6	.03	.04	.05	.06	.07	.08	—	—
8	.05	.07	.09	.11	.12	.14	.15	.17

* This table gives average volumes. See your local forester for more accurate local tables.

RESOURCES

Printed Materials

Rodale Press
Educational Services Division
33 East Minor Street
Emmaus, Pa. 18049

films - Environmental Action Bulletins

Cambridge Book Company
488 Madison Avenue
New York, New York 10022

Paperback booklets: "Using Line Graphs", by Sanford M. Eisler and Murray Stock

National Science Teachers Association
1201 Sixteenth Street, N.W.
Washington, D.C. 20036

Packets - catalogue of Environmental Education material

ESTPP
Box 1559
Boulder, California 80302

"The Cutting Edge"

Ward's Natural Science Establishment, Inc.
P.O. Box 1712
Rochester, New York 14603

Culture Leaflets, 213-0100 or 213-0125 (free)

National Audubon Society
Nature Center Planning Division
950 Third Avenue
New York, New York 10022

I-E Bulletin No. 2, "Planning a Nature Center" $2.00
"Manual of Outdoor Conservation Education"(A Handbook for Environmental Education)

Printed Materials (continued)

Teaching for Survival by Mark Terry

St. Regis Paper Company
150 East 42nd Street
New York, New York 10017

variety of information

"Life--Pass It On"

President's Environmental Merit Awards Program
Washington, D.C. 20460

Project Outreach
An Environmental Education Program
of the Phoenix Union High School System
Phoenix, Arizona

Dr. Raymond Weinhold, Project Director
Lyman L. Jackson, Project Coordinator
Project No. 07-210-12-69-0015-1
Funded Through ESEA Title III, Public Law 89-10

Student Action for the Valley Environment (SAVE)
A multi-disciplinary approach to Environmental Studies for high school students combining the areas of Earth Science, Social Science and Health Education.

Environmental and Outdoor Education Materials Company
Dowling, Michigan 49050

Catalog

Prentice-Hall, Inc.
Englewood Cliffs, New Jersey

"The Environmental Crisis: Will we Survive?"
by Charles B. Myers, C.R. 1972

Laidlaw Brothers Publishers
River Forest, Illinois

"The Environmental Sciences", Ecology, Environment, and the Biosphere, C.R. 1974

Printed Materials (continued)

U.S. Department of Health, Education, and Welfare
Office of Education
National Center for Educational Communication

"Environmental Education Programs and Materials"
PREP Report No. 33
DHEW Publication No (OE) 72-9

Man and the Environment

Houghton Mifflin Company
110 Tremont Street
Boston, Mass. 02107
C.R. 1971

EP - The New Conservation

Griffith, Landin, and Jostad
Published - Izaak Walton League of America

Paperbacks

Our Troubled Waters
Mist of Death
How Many are Too Many
The Worlds Exhaust

Ecology Series

Pendulum Press, Inc.
West Haven, Conn. 06516

It's Your Top Soil (Farm AE-100 Second Edition)

American Steel and Wire
United States Steel
Rockefeller Building
Cleveland, Ohio

The Story of Aluminum - Ecology Pamphlets

The Aluminum Association
750 Third Avenue
New York, New York 10017

Food Additives
Manufacturing Chemist Association
1825 Connecticut Avenue, N.W.
Washington, D.C. 20009

Printed Materials (continued)

Water Pollution (Causes and Cures)

Community Relations Department
Manufacturing Chemist Association
1825 Conn. Avenue., N.W.
Washington, D.C. 20009

Bibliography for Ecological Studies

Educational Service Center,
Polk County Board of Education
1971

Exploring Your Environment

American Book Company
300 Pike Street
Cincinnate, Ohio 45202

Viewpoints

Horizon Ecology Company
7435 North Oak Park Avenue
Chicago, Illinois 60648

Lesson Plan

School Environmental Impact Study

Rationale: The school is a kind of community unto itself and consequently reflects an impact on the environment that is somewhat typical of other communities.

The Action:

1. This activity is designed for an individual or small group project.
2. Data is collected on the total school impact on the environment. This includes the water usage, kilowatt hours of electricity, fuel, paper, cleaning supplies, etc. Information about these items can be obtained from a number of sources.
3. The data may be used in a variety of ways, such as graph charts to make others aware of the demands placed on the environment by the school itself.

Lesson Plan

Auto Transportation Survey

Rationale: The automobile has been identified as a major source of air pollution especially in urban areas. This activity is designed to help the student gain insight into some of the reasons why this is so.

The Action:

1. This activity may be used as an individual or small group project.
2. Students might wish to explore the possible things that they could observe about people in auots that might be an indicator of why the automobile is such an efficient air polluting device. A suggestion would be to count the number of passengers per auto passing a given point in a certain length of time.
3. Prepare a tally sheet. See Figure 4.
4. Select areas such as intersections, etc., where observers could be stationed for a certain time interval each day, such as a 15 minute period during the class time, 7:45 to 8:00 a.m., etc. Number of days would be optional.
5. Use the tally sheet to tally the number of autos with one passenger, two passengers, etc.
6. The data could be handled in several ways, such as charts, graphs, etc.
7. The inferences to be drawn from this data is left up to the personnel involved.
8. What does the data suggest to you about career areas that might be related to the traffice problems in a city?

Passenger Survey Sheet
(Tally Sheet)

Date: _____

Time: _____

Location: _____

Passengers Per Auto		
One	Two	Three or More
Total _____	Total _____	Total _____

Figure 4

Lesson Plan

Neighborhood Environmental Depreciation Survey

Rationale: That an intensified study of the environmental depreciation in the school community can help us become more aware of the environmental needs of this area. This could be the basis for a community-awareness program to deal with these needs.

The Action:

1. Make a map of the area where you live. Include from one to several blocks in your study, depending on the time that you wish to spend on this activity.
2. Do a study of the environmental depreciation in this area. Include such things as:
   - sidewalks in need of repairs
   - streets in need of repairs
   - vacant lots that don't look good
   - vacant houses that are showing signs of destruction
   - houses with paint peeling, etc.
   - lawns in need of more grass
   - places where soil washes out into the sidewalk or street
   - places where trash and garbage accumulate
   - places where parked cars are a problem
   - junk cars
   - places where trees are needed
   - lack of proper street lighting
   - noisy places
3. Locate things on your map...do not include names of any individuals.
4. We will attempt to compile these into a large map of the community.
5. Make a list of the eco-environmental needs of the school community as you see them.
6. How might a class at school help make the people in the community more aware of these needs?
7. Do a similar study of the school complex.

Lesson Plan

Student Activity: Air Particulate Sampling

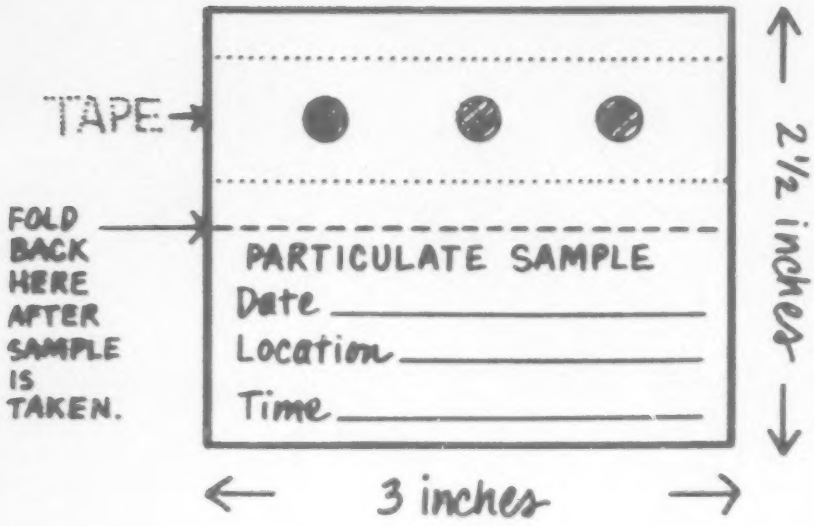
Materials: Paper punch
note cards
transparent tape

Procedure:

1. Construct sample as shown on Figure 5.
2. Place samplers at previously selected places.
3. Leave samplers for designated length of time.
4. Examine under microscope.
5. Record number of particulates per hole.
6. Group particulates by size, shape, color, etc., (sketch).

Interpretation:

1. Cut a 2½ inch by 3-inch card.
2. Crease center for guide.
3. Punch 3 holes where indicated.



4. Place strip of transparent tape over holes, sticky side down.
5. Write information on lower half of card.

Figure 7

Lesson Plan

Air Monitoring and Analysis Project

Representatives: Des Moines Independent Community School District and the Air Pollution Laboratory of the Des Moines - Polk County Health Department (Bill C. Wyer, Chemist).

Project Duration: Approximately October 1, 1973 through the end of the school year.

Equipment Provided by the Air Pollution Laboratory: Equipment to be used for the duration of the project will include ten dustfall buckets, ten bucket holders, and ten sulfation plate holders.

Equipment to Be Furnished by the Schools: This will include the purchase of the sulfation plates and any mounting devices needed to attach the two holders.

Project Description: The Air Monitoring and Analysis Project would be conducted by ten junior high schools throughout Des Moines with the cooperation of the Air Pollution Laboratory of the Des Moines-Polk County Health Department. Interested students in each of the ten schools would operate and maintain two separate air pollution monitoring devices.

The devices would include a dustfall station and a sulfation or sulfar dioxide plate. Each device would be placed on the second story roof of each school and the samplers would be collected every thirty days and brought to the Air Pollution Laboratory. During the initial set-up of each dustfall bucket, 1000 ml of distilled or demineralized water will be placed in each bucket and that volume should be checked and maintained by the students daily. However, because of weather conditions the volume may be exceeded but should never be allowed to go below the 1000 ml mark. During warm weather distilled or demineralized water can be used to replace any needed volume, but during the cold months an antifreeze, solution must be used to prevent sample from freezing. There is no daily maintanance needed for the sulfation plates.

Because the schools lack the equipment needed to perform the analysis, the samples will be analyzed by the Air

Pollution Laboratory and the data would then be returned to each school to be used by the students to make their own charts, graphs, and conclusions. In addition to providing the analysis of the samples for the schools, the Air Pollution Laboratory would be available to small groups of interested students who would like to see an air pollution laboratory in operation.

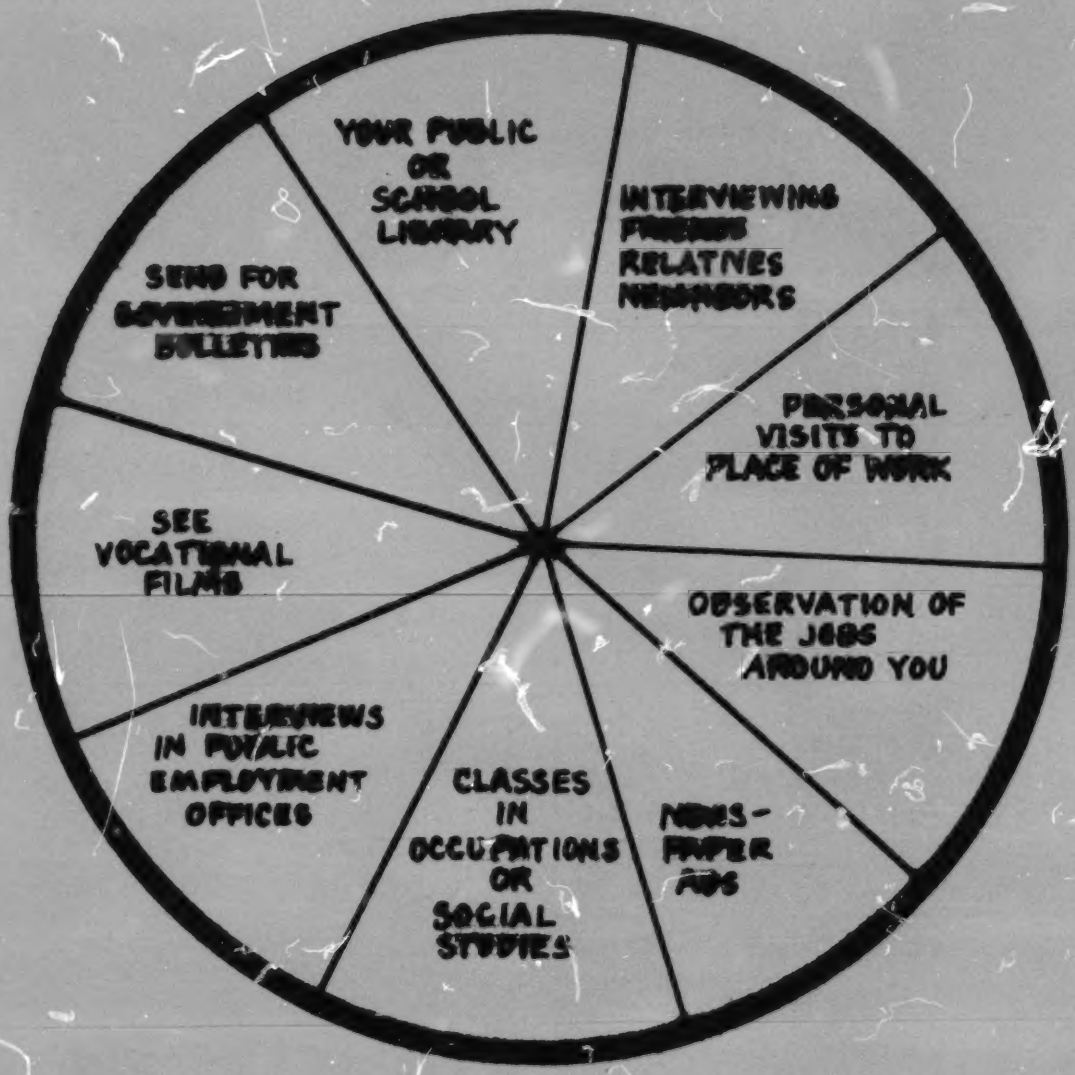
Any additional assistance or information can be provided to the schools at any time throughout the duration of the project by Mr. Bill C. Wyer.

SUMMARY

It is hoped that inservice time will be used to help develop and enlarge this guide. Because the committee found that the exchange of ideas in developing the guide was very informative, it would emphatically suggest that time be made available to continue this work.

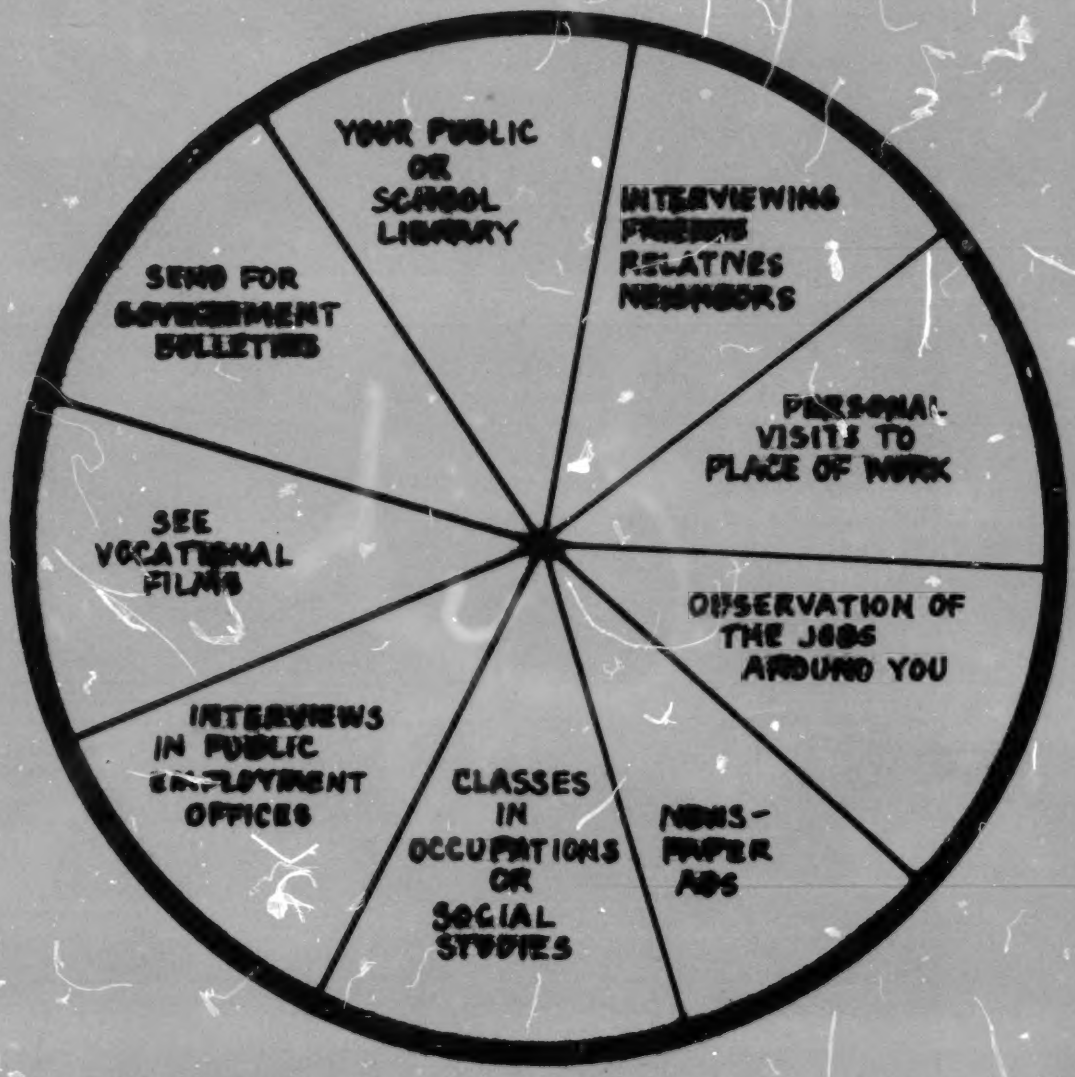
Sources for Career Information

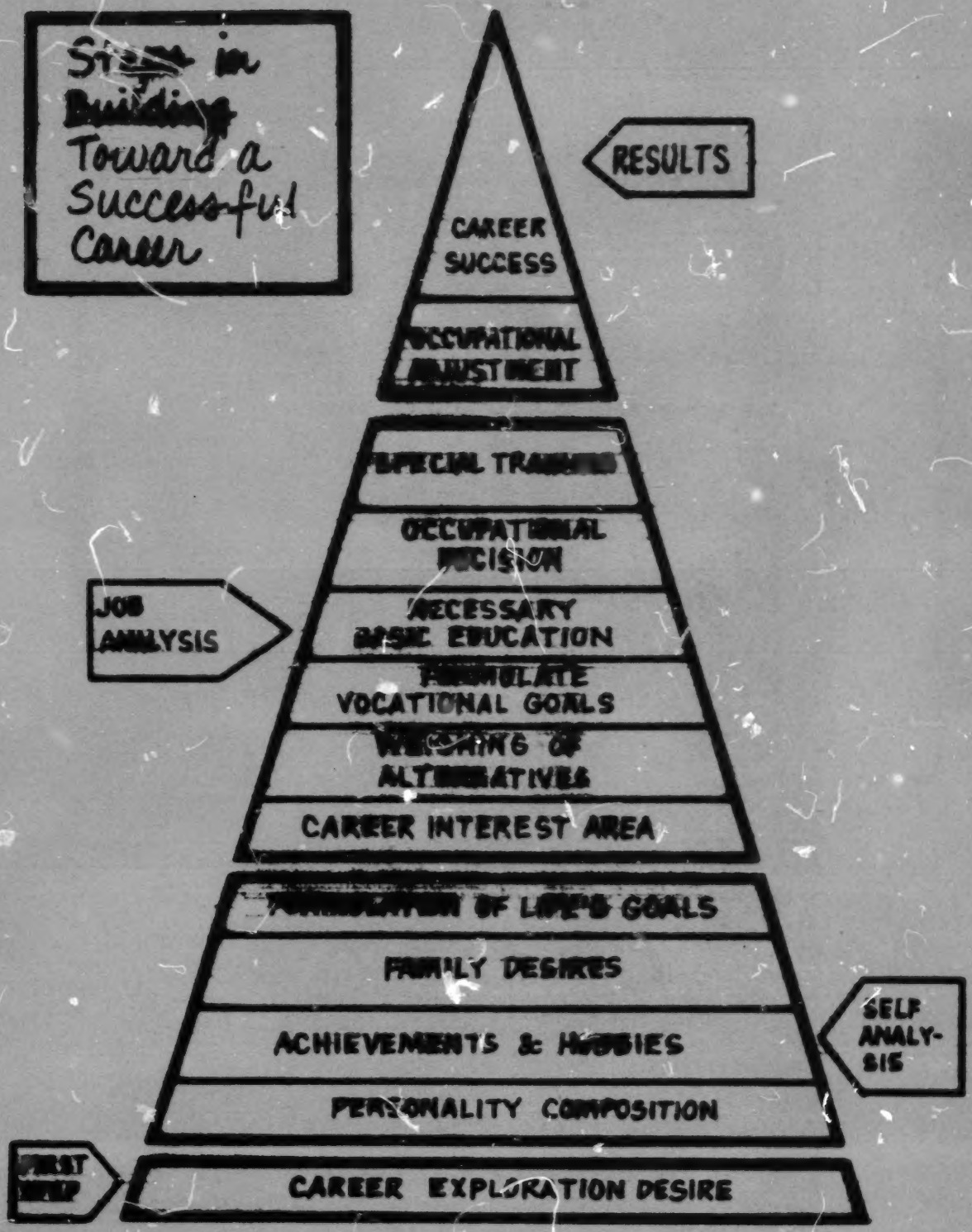
Curriculum Clusters for 21st Century Citizens



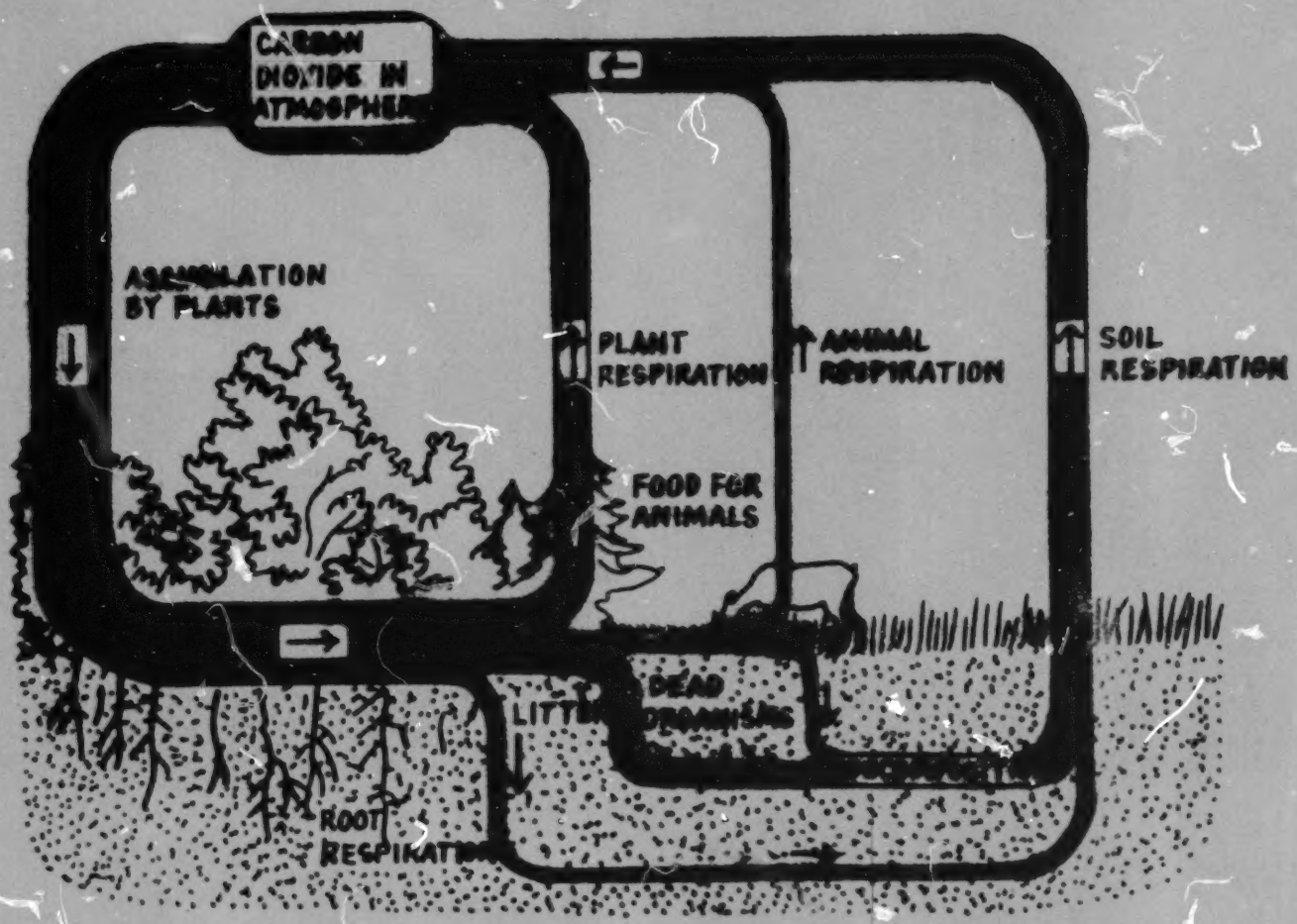
Sources for Career Information

Curriculum Clusters for 21st Century Citizens



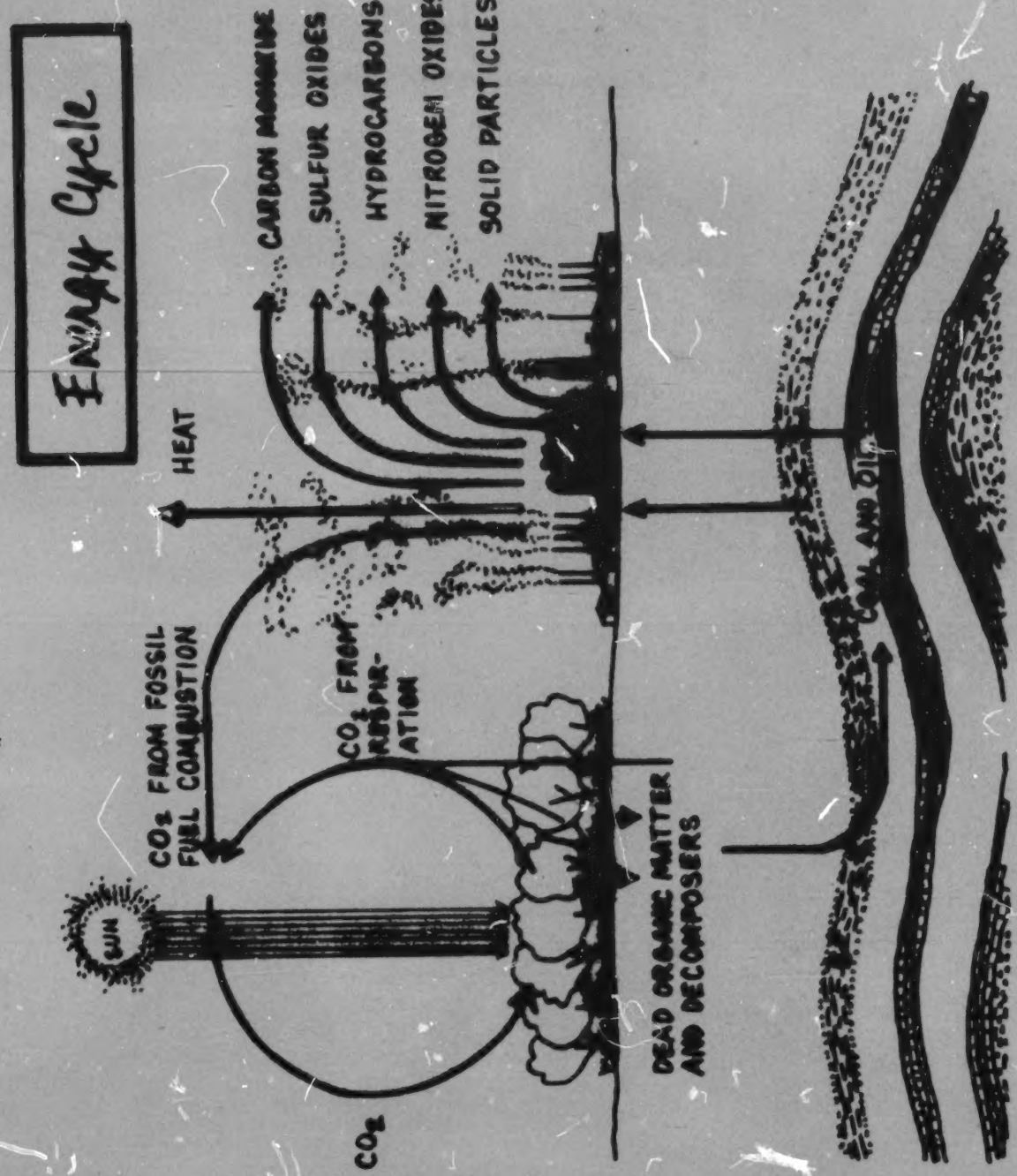

Steps in Building Toward a Successful Career
RESULTS
CAREER SUCCESS
OCCUPATIONAL ADJUSTMENT
SPECIAL TRAINING
OCCUPATIONAL DECISION
JOB ANALYSIS
NECESSARY BASIC EDUCATION
FORMULATE VOCATIONAL GOALS
WEIGHING OF ALTERNATIVES
CAREER INTEREST AREA
FORMULATION OF LIFE'S GOALS
FAMILY DESIRES
ACHIEVEMENTS & HOBBIES
SELF ANALYSIS
PERSONALITY COMPOSITION
FIRST STEP
CAREER EXPLORATION DESIRE

Carbon Cycle



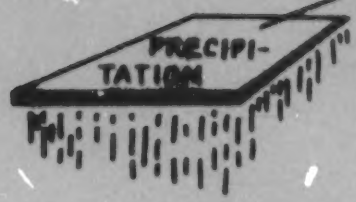
Transparency

Transparency

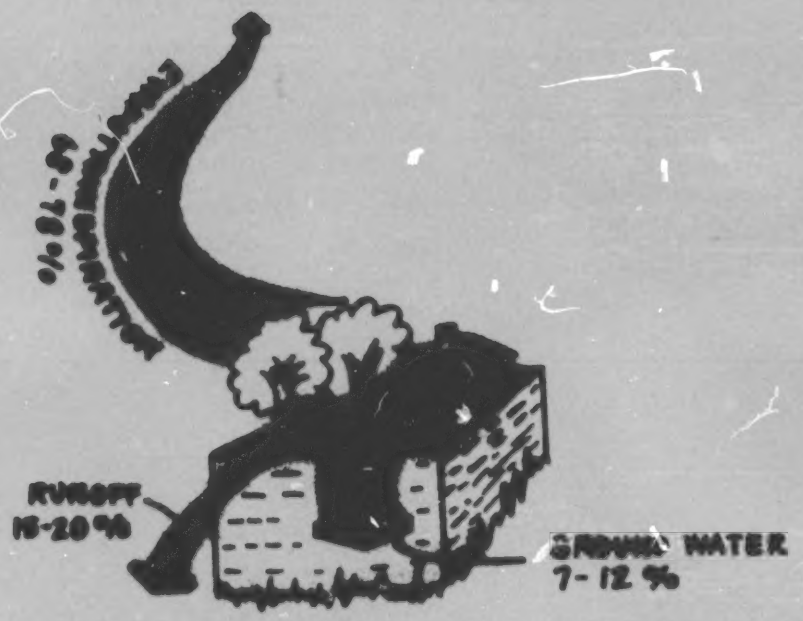


Transparency

Water Cycle



200,000 GALLONS OR ENOUGH WATER TO SUPPLY 10 PEOPLE FOR A YEAR FALL ON EACH 100-FOOT SQUARE PLOT OF LAND.

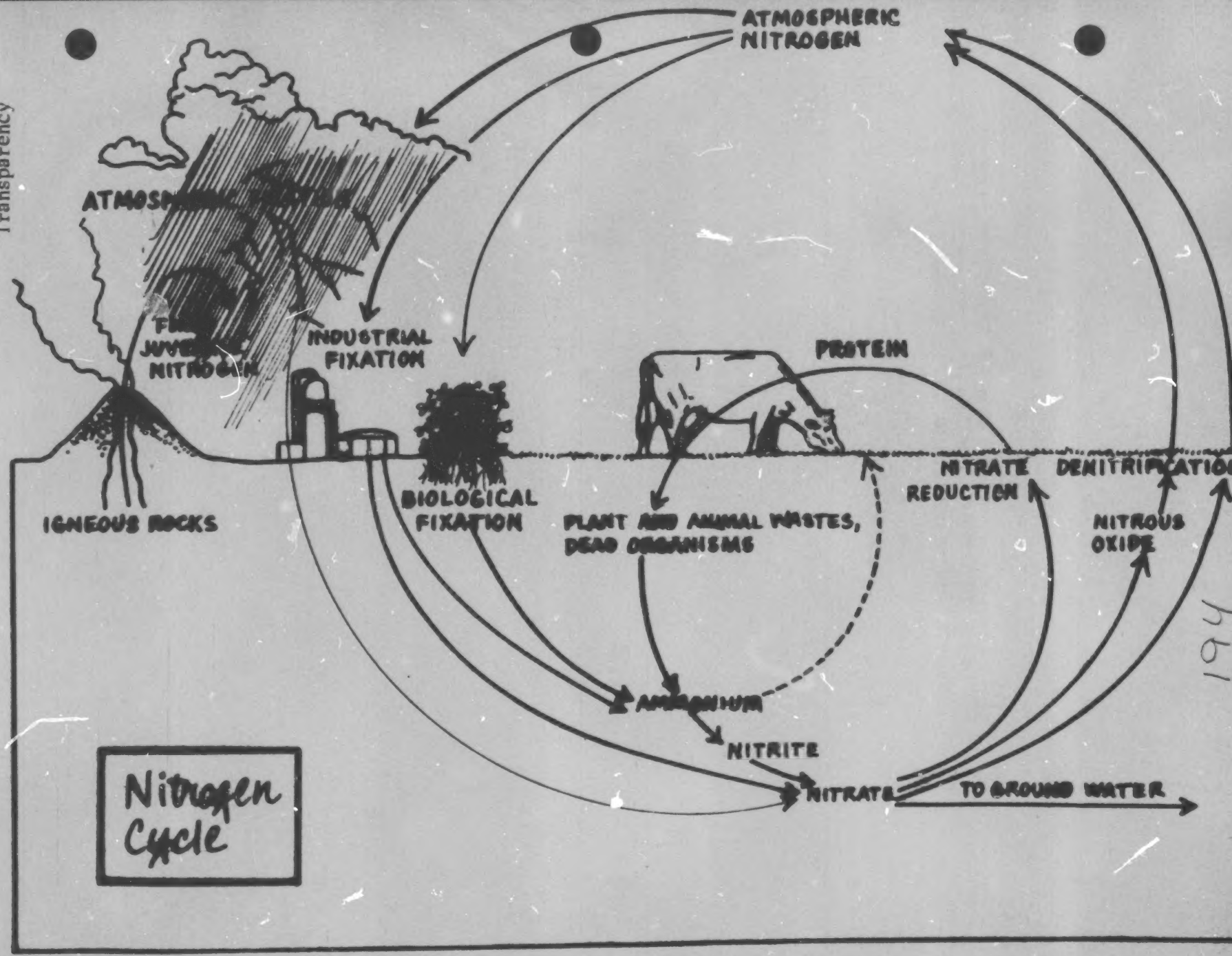


STREAM WATER IS USED BY MUNICIPALITIES AND INDUSTRY AND THEN RETURNED TO STREAMS.

OCEAN

A LARGE QUANTITY OF WATER FALLS ON CENTRAL IOWA EACH YEAR BUT NOT ALL IS AVAILABLE FOR CONTROLLED USE BY MAN.

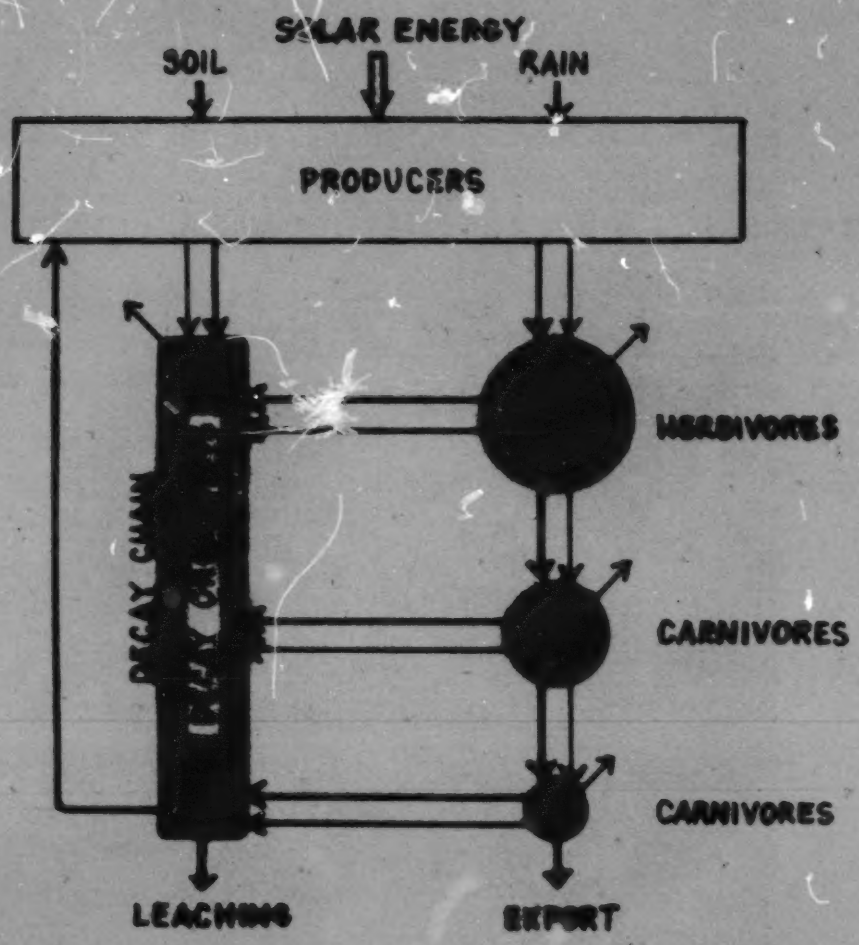
Transparency



194

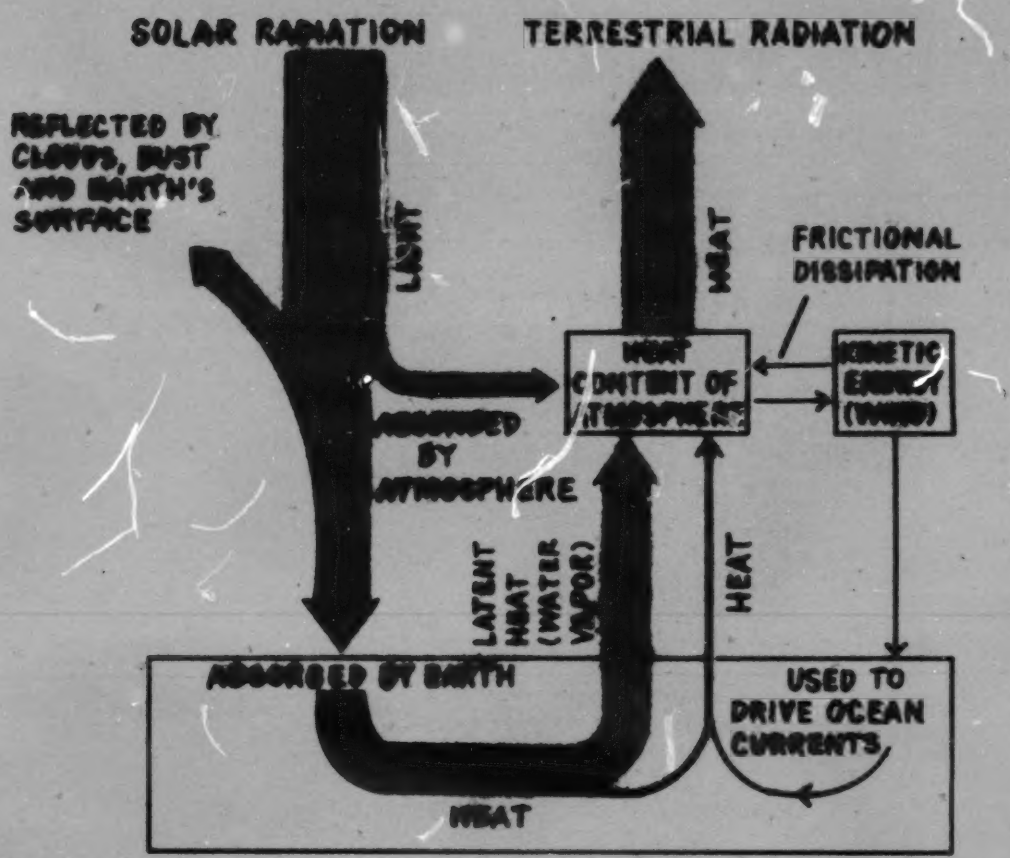
Transparency

Energy Flow



195

Atmospheric Heat Engine



INDEX

FILMS (Area XI)

40553	Ecology-Energy Relations	(JS)
40554	Marine Ecology	(JS)
40886	Our Endangered Environment-Soil	(IJS)
20608	Air Pollution	(JS)
40086	Buffalo-Majestic Symbol of Plains	(PIJS)
20141	Conserving Our Forests Today	(IJ)
41009	Conserving Our Natural Resources	(IJS)
20448	Conserving Our Soil Today	(IJ)
20080	Forest Conservation	(JS)
40190	Forest Ranger	(I)
40289	Mans Problem-Water Supply	(JS)
40886	Our Endangered Environment-Soil	(IJS)
40297	Problem with Water is People	(IJS)
40164	Archaeologists at Work	(IJ)
40733	Challenge of the Oceans-Oceanography	(JS)
41820	Cosmopolis-Big City 2000 A. D.	(JS)
21443	Ecology of Forests	(PIJ)
42067	Physical Environment	(JS)
42442	Who Killed Lake Erie	(JS)
42296	Is A Career in the Health Services for You	(JS)
21356	Fuels- Their Nature and Use	(JS)
21216	Laws of Conservation of Energy and Matter	(IJS)
42014	Living with the Atom	(JS)
42146	Weather Satellites	(JS)
20270	Oceanography-Science of the Sea	(IJS)
40729	Secrets of the Ice-Glaciology	(JS)
40080	Space Science-Planets	(IJS)
40077	Space Science - Studying Stars	(IJS)
40505	Sun and Energy	(IJ)
40356	Conservation of Energy	(S)
40170	Energy from the Sun	(IJ)
20467	Introducing Atoms and Nuclear Energy	(IJ)

FILMS (Department of Adult Education, Des Moines Schools)

	National Parks - Road for Future
738	Automobiles: The Great Love Affairs
739	54 min. Setting aside the many serious problems created by cars, this presents instead a survey of our society with the

automobile and its involvement. In Parts I and II we see everything from drive in churches to teen-age drag racing; from parking lots to motion pictures about cars, and from automobile advertising to old car collecting. Clever script helps prove what we all know is true... Americans love automobiles. (Part I may be used alone or with Part II). 1966

649 Rise and Fall of the Great Lakes, The
16 min. Color, A folk singer tells the story of the Great Lakes; how they were created by four glacial ages and how, when the sun finally came out melting the glaciers, rivers and streams were formed. Viewers see a woodsman paddling his canoe in the lake and trick photography provides humorous illustrations of the natural changes through the ages. Brings the viewer up to the present as the canoeist's way is obstructed by canals, locks, dams and lake ships - and ends on a shocking view of man-made pollution and thousands of dead fish. Has wide appeal and general audience usage -and is educational as well as thought-provoking.

526 Too Thick to Navigate -- Too Thin to Cultivate
N/C 30 min. Color - Throughout America there is growing concern that slowly but surely we are polluting one of our nation's most valuable natural resources -- our priceless water supply. Polluting our very environment, in fact. To aid in a better understanding of the problems of water pollution, and to better inform our citizens, this film was produced by WBBM-TV, Chicago, in conjunction with CBS-TV. It's a graphic and "eye-opening" documentary of the pollution that is taking place in Lake Michigan. Excellent color and a factual report for use by youth, students and adults alike, for it may well be America's #1 conservation problem in years ahead. Excellent

1052 Man's Influence on His Environment (J-H) 20 min.
Color Man's control over his environment daily becomes more absolute. This film shows why he must eventually decide how far to extend this control. MLA. Instructional Media Center

FILMS - Des Moines Instructional Media Center

3212 Population Ecology (AIBS Series) 28 min.
Illustrates natures orderliness despite migrations, immigrations, competition, and predation. Demonstrates use of population growth curves illustrating increases in size of population. Uses models to illustrate effects of competition and predation.

2329 What is Ecology? Color (H) 11 min.
Introduces the study of ecology by illustrating the wide variety of interrelationships between plants, animals and their environment. Shows how biologists study these interrelationships and explains the importance of such studies to mankind. The major biomes of the world are introduced. E. B. F.

3915 The Changing Forest (J-H) 19 min. Color
A brief essay on the ecology of a deciduous forest area of the type found along the southern fringes of the Laurentian Shield. We see the forest as an integrated community of living things, both plant and animal, balanced by conflict as well as harmony in the never-ending struggle for survival. We see too how and why the maple, its flaming reds and yellows of autumn so characteristic of this type of forest, is best able to survive the struggle for supremacy. Canadian Film Board.

97 Conservation of Natural Resources (I-C) 11 min.
98 Three natural resources are discussed in this film: water power, forests and farm lands. Early wastes in lumbering and agriculture are shown followed by an explanation of steps taken to conserve these resources. The effects of wind and water erosion and unwise farming are outlined and local and federal efforts to check these abuses are shown. E. B. F.

4455 Conserving Our Natural Resources (I-H) 17 min.
Color. Man takes from his environment materials which he uses to make his life easier. These are natural resources.

4375
1109 Dust Bowl (J-H) 26 min. The story of neglect of the land, neglect of the people who farmed the land, exploitation, speculation and complacency which resulted in a mass migration from drought ridden areas of the southwest to California. McGraw.

3240 Forests and Conservation (I-J) 15 min. This important study of forest conservation shows our government and a progressive lumber camp joining forces to save trees through a program of selective logging, reforestation, and fire prevention. An exciting fire-fighting sequence shows the forest's most deadly enemy at its devastation work. Coronet.

191 Guardians of the Wild, (I-C) 10 min. Forest Ranger at work; reveals the ideals of public service that motivate him and some of the benefits that Americans receive from his activities. U.S. Government.

2231 Harvest for Tomorrow (I-C) 27 min. Shows the basic need for soil conservation and the use of soil building practices in the northeastern states. A documentary type picture on rural New England. U.S. Government

2284 Living City, The (J-H) 25 min. Produced in cooperation with the Twentieth Century Fund. Vividly reveals the necessity for urban redevelopment in a cross section of American cities.

3000 Living in a Metropolis (I-H) 20 min. (Greater New York) New York, one of the world's largest cities, is a nerve center of manufacturing, trade, and research, in this growing industrial world.

2566
2567
2673 Man Makes a Desert (color) 10 ½ min. (I-J) The film illustrates the changes that can occur when man upsets the delicate balance between the plants and animals that inhabit an area. A grassland in the southwestern U.S. was plowed and overgrazed. The grass gave way to desert plants, the life the grass supported disappeared, and a desert was created.

3232 Meaning of Conservation, The (I-J) Preserving what we have, and rebuilding what has been lost are two of the central ideas behind conservation. In this film we see what is being done to maintain our country's resources and natural beauty by limiting hunting and fishing, etc.

3044 New Paul Bunyon (J-H) Color 29 min. The film relates the progress in growing trees and in obtaining better use of the tree crop. Intimate close-ups of wild life at play in their natural forest habitat. Dramatic on-the-spot scenes of Pacific Northwest logging operations.

546 Seeds of Destruction (J-H) 11 min. Reveals the alarming extent to which man is depleting the soil and forest resources upon which his very survival depends.

492 Soil and Water Conservation (I-H) 10 min. Shows briefly how conservation farming methods may prevent further destruction of the nation's soil and water resources. It emphasizes proper land use as the basis for conservation farming.

2329 What is Ecology? Color (H) 11 min. Introduces the study of ecology by illustrating the wide variety of interrelationships between plants, animals, and their environment. Shows how biologists study these interrelationships and explains the importance of such studies to mankind. The major biomes of the world are introduced. E. B. F.

3542 ABC of Internal Combustion (J-H) 13 min. Color- Shows with animated cartoom characters how the three basic ingredients - air, fuel, and ignition work together to create power in the internal combustion engine. General Motors.

491 Birth of an Oil Field (I-H) 30 min. Color. This film catches the suspense of drilling a "wildcat" a well sunk in unproved territory. Live action shots show oil men building a derrick and drilling crews moving with split-second timing as they operate heavy equipment. Models show the technique of fishing when the drill pipe breaks and the use of the whipstock in by-passing the break. Animated sequences show how natural underground forces make oil flow and how pumps or special drives are used when natural forces slacken. Shell Oil.

1193 The Diesel Story (I-H) B & W 19 min.
The versatile, efficient diesel is an early result of the designer's effort to burn fuel inside the cylinder instead of under a boiler nearly. Development of the diesel is traced from the Otto "silent" gas engine to 1877 to the machines that now drive ships, trains, tractors, trucks and even cars. Shell.

BIBLIOGRAPHY

Bibliography for Ecological Studies
Compiled by: William S. Blagen, Ph. D.
Population Ecologist
September, 1968

REFERENCES

Environment Action Bulletin
Career Education in the Environment by Olympus Research Corp.
Supt. of Documents
U.S. Government Printing Office
Washington, D.C. 20402

CE 009 612

ACCESSION NUMBER: VT103470

PUBLICATION DATE: 75

TITLE: MARKETING AND DISTRIBUTION. JUNIOR HIGH CAREER EDUCATION HANDBOOK.

DESCRIPTOR: *MARKETING; *CURRICULUM GUIDES; *CAREER EDUCATION; SECONDARY EDUCATION; *JUNIOR HIGH SCHOOLS; *BUSINESS EDUCATION; GRADE 9

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 108P.; RELATED DOCUMENTS VT 103 467 AND VT 103 469 AND VT 103 471 AND VT 103 552 AND VT 103 575 IN THIS ISSUE. PAGES 109 THROUGH 112 CONSISTING OF A PUBLICATIONS LIST FROM CAREERS, INC. WAS REMOVED. THEY ARE NOT INCLUDED IN THE PAGINATION.

ABSTRACT: DEVELOPED BY A COMPREHENSIVE CAREER EDUCATION PROJECT IN DES MOINES INDEPENDENT SCHOOL DISTRICT, THIS HANDBOOK FOR THE JUNIOR HIGH LEVEL PROVIDES ACTIVITIES FOR A STUDY OF CAREERS IN MARKETING AND DISTRIBUTION. IT IS SUGGESTED THAT THE MATERIALS BE INTEGRATED INTO THE EXISTING GENERAL BUSINESS TRAINING COURSE AT THE LEVEL OF GRADE NINE. THE AREAS OF MARKETING AND DISTRIBUTION COVERED IN THE HANDBOOK ARE THE DEPARTMENT STORE, THE FAST FOOD INDUSTRY, THE PETROLEUM INDUSTRY, ADVERTISING, AND BANKS AND INSURANCE. EACH OF THE LESSONS IN THE DEPARTMENT STORE, FAST FOOD, AND PETROLEUM INDUSTRY UNITS CONSISTS OF STUDENT STUDY SHEET AND TEACHER'S GUIDE. THE TEACHER'S GUIDE SUGGESTS MEDIA TO BE USED, DISCUSSION QUESTIONS, STUDENT ACTIVITIES, AND ADDITIONAL RESOURCES. STUDENT STUDY SHEETS PROVIDE INFORMATION FOR VARIOUS OCCUPATIONS ABOUT WORK PERFORMED, WORKING CONDITIONS, WAGES, REQUIREMENTS, OUTLOOK, ALONG WITH SUGGESTED LEARNING ACTIVITIES. THE UNIT ON BANKS AND INSURANCE CONSISTS OF GENERAL JOB INFORMATION FOR SEVERAL OCCUPATIONS IN THE FIELD PLUS SUGGESTED ACTIVITIES. THE ADVERTISING UNIT PROVIDES GENERAL JOB INFORMATION AND LISTS THE DUTIES OF SIX SPECIFIC OCCUPATIONS. APPENDED TO THE HANDBOOK ARE SUGGESTIONS FOR INDIVIDUALIZED INSTRUCTIONAL UNITS AND A LIST OF USEFUL EQUIPMENT AND MATERIALS. (NJ)

INSTITUTION NAME: DES MOINES PUBLIC SCHOOLS, IOWA.

SPONSORING AGENCY NAME: BUREAU OF OCCUPATIONAL AND ADULT EDUCATION (DHEW/OE), WASHINGTON, D.C.

VT103 470

OCT 22 1976

JUNIOR HIGH CAREER EDUCATION HANDBOOK FOR

RECEIVED
OHEW-OE
BUREAU OF OCCUPATIONAL
AND ADULT EDUCATION
REGION VII

JUN 10 1976

MARKETING & DISTRIBUTION

T EDITION • 1973
OND EDITION • 1975

VT 103 470

BEST COPY AVAILABLE

MARKETING AND DISTRIBUTION

BOARD OF EDUCATION

Dr. George G. Caudill, President

Mr. Nolden I. Gentry
Mrs. Betty Grundberg
Dr. John E. McCaw
Dr. Ora E. Niffenegger
Mr. Merle F. Schlampp
Mrs. Jack Spevak

SUPERINTENDENT OF SCHOOLS

Dr. Dwight M. Davis

ASSISTANT SUPERINTENDENT FOR EDUCATION

Dr. Robert R. Denny

EXECUTIVE DIRECTOR, SECONDARY EDUCATION

Dr. D. M. Wetter

SUPERVISOR OF BUSINESS EDUCATION

Emory Shriver

CE 009 610

PREFACE

To further assist in making education more meaningful, a workshop was set up for one week (Summer, 1975) to either delete or add material to the Handbook for Junior High Career Education in Marketing and Distribution.

The committee decided not to delete anything from the existing materials and instead to add some units dealing with the distribution of services. Since Des Moines is a financial center, the new units deal largely with banking and insurance. Perhaps units can be developed in the future on such topics as grocery stores, small specialty shops, legal services, etc.

We would like to thank the following people for their initial contributions to the development of these materials in 1973 as well as those people in 1975 who developed the supplemental curriculum materials in Marketing and Distribution.

Teachers

1973

Weldon Else	Business Education	Roosevelt High School
Jerry Lucht	Business Education	Brody Jr. High School
Ron McHone	Business Education	Meredith Jr. High School
Bill Reynolds	Business Education	Callanan Jr. High School
Ken Stock	Business Education	Weeks Jr. High School
Sam Treichler	Business Education	North High School
Emory Shriver	Business Education	Supervisor

1975

Gary Brand	Business Education	Irving Jr. High School
Helen Kachelhoffer	Business Training	Harding Jr. High School
William Linthicum	Business Training	Merrill Jr. High School
Merrill Whitlatch	Typing	Harding Jr. High School

Business and Industrial Participants

1973

John Kemper	Sears, Roebuck and Company
Dallas Lewter	Phillips Petroleum, Inc.
Bud Reading	Younkers
Dean Sage	McDonald's Hamburgers, Inc.

1975

Constantine Nicholson	Merrill Lynch, Pierce, Fenner and Smith

TABLE OF CONTENTS

I. GOALS AND OBJECTIVES 1

II. SUGGESTED USE OF MATERIALS 2

III. INTRODUCTION TO THE WORLD OF MARKETING AND DISTRIBUTION 3

IV. CAREER OPPORTUNITIES IN MARKETING AND DISTRIBUTION 4

V. THE DEPARTMENT STORE 8

Lesson 1: Department Store Organization
a. Organization Chart 9
b. Teacher's Guide 10
Lesson 2: Being a Sales Clerk
a. Teacher's Guide 11
b. Student's Study Sheet 11

Each lesson consists of a Student's Study Sheet (to be duplicated for each student) and a Teacher's Guide. Study Sheets should be re-used from class to class.

Lesson 3: Shipping and receiving Clerk 15
Lesson 4: Buyer 17
Lesson 5: Fashion Designer 20
Lesson 6: Credit Manager 23
Lesson 7: Personnel Manager 26
Lesson 8: Public Relations 30

VI. THE FAST FOOD INDUSTRY

Lesson 1: Introduction to the Fast Food Industry 33
Lesson 2: Production and Counter Help 34
Lesson 3: Assistant Manager 35
Lesson 4: Unit Manager 37
Lesson 5: Unit Supervisor 38

VII. THE PETROLEUM INDUSTRY

Lesson 1: Introduction to Marketing and Distribution in the Petroleum Industry 39
Lesson 2: Driveway Salesperson 45
Lesson 3: Service Station Mechanic 47
Lesson 4: Assistant Manager and Station Manager 48
Lesson 5: Field Marketing 58

VIII. ADVERTISING (New 1975) 61

IX. BANKS AND INSURANCE (New 1975)

Lesson 1: Bank Clerks 65
Lesson 2: Bank Teller 67
Lesson 3: Bank Loan Officer 73
Lesson 4: Bank Manager (Branch) 75
Lesson 5: Investing in Stocks and Bonds 77
Lesson 6: Account Executive, Stocks and Bonds 81
Lesson 7: Insurance Agent 85
Lesson 8: Insurance Adjuster 88
Lesson 9: Real Estate Agent 91

X. SUGGESTIONS FOR UNITS ON INDIVIDUALIZED INSTRUCTION 93

XI. APPENDIX

Suggested Equipment and Materials 94

I. GOALS AND OBJECTIVES

PROGRAM GOALS FOR 1973-74 SCHOOL YEAR

1. Career exploration for students in the Ninth grade General Business Training course in the area of "Marketing and Distribution" with emphasis on careers in department stores, the petroleum industry and the fast food industry. (Lack of time limited the workshop participants to these three specialties.)

2. Development of activities that will reach students of all economic and intellectual levels.

3. Helping students become acquainted with the short and long term potentials in "Marketing and Distribution."

LONG RANGE GOAL FOR THE FUTURE

Development of a complete program in "Marketing and Distribution" to be taught on the Junior High School level. Other specialties to be added may include supermarkets, discount houses, specialty stores, warehousing, wholesaling, service occupations, etc.

PRIME OBJECTIVE

At the end of the 1973-74 school year, the student will be able to list the qualifications. opportunities, fringe benefits, working conditions, and entrance level for five of the careers explored.

00007

II. SUGGESTED USE OF MATERIALS

As previously indicated, it is suggested that Marketing and Distribution be integrated into the already existing General Business Training course. Instead of setting aside a block of time for the concentrated and exclusive study of Marketing and Distribtuion, it is suggested that various topics be spread over the entire two semesters of the regular General Business Training course. The exact placement and time allotment for each topic is left to the discretion of the teacher.

The General Business Training text currently in use is Crabbe, General Business, Ninth Edition. The following suggestions are made:

1. Introduce the Department Store Unit after the completion of the textbook's Unit 3, Buying by the Consumer. The sections on Credit Manager and Advertising may be delayed for use after other directly related units, see paragraphs 2 and 3.

2. Introduce the Credit Manager section after the textbook's Unit 4, Using Credit Wisely.

3. Introduce the Fast Food unit after the textbook's Unit 7.

4. Introduce the Petroleum unit after the textbook's Unit 10, Transportation and Shipping Services.

5. The list of "Career Opportunities in Marketing and Distribution" should be referred to frequently throughout the course.

00008

III. INTRODUCTION TO THE WORLD OF MARKETING AND DISTRIBUTION

An excellent method of introducing the many facits of marketing and distribution would be to show the slide presentation "The World of Marketing and Distribution". See Appendix for suggested items for purchase. Each school should have its own copy so that it may be referred to frequently in whole or in part throughout the course. The teacher should preview the presentation and determine whether it should be shown to the students in one sitting or broken into parts. If it is shown in one sitting, it should be later shown again in small segments.

So as to meet the goals for the 1973-74 school year, the 1973 workshop elected to study only three areas of marketing and distribution--the department store, the petroleum industry, and the fast food industry. Lack of time prevented inclusion of more of the many other areas of marketing and distribution. The three areas selected were not chosen because they were the most important, but for a combination of other reasons:

1. Requirements for entrance into these areas can be met by many of our students.

2. Students are familiar with these areas.

3. Representatives from these areas were on the advisory committee and gave excellent co-operation in their specialty.

Since retail selling is one of the largest, if not the largest, field of marketing and distribution, the department store was analyzed in depth. Sample lesson guides and teacher guides were prepared for the use of the teachers. There was no attempt to prepare day-by-day outlines for the entire course. In fact, the petroleum and fast food industries were covered only in general outline form, leaving the preparation of daily lessons plans to the discretion of the individual teachers.

student)

IV. CAREER OPPORTUNITIES IN MARKETING AND DISTRIBUTION WITH D. O. T. NUMBERS

A. SALES PROMOTION

1. Marketing Research Worker 50.088
   a. field interviewer
   b. tabulator
   c. analyst

2. Advertising 132.088, 141.081, 141.168, 164.068-164.168
   a. account executive
   b. artist
   c. copywriter
   d. layout artist
   e. paste-up man

   Use the unit on Department Store for the following jobs in advertising:

   f. sales promotion manager
   g. sign machine operator
   h. display director

3. Public Relations 164.068
   a. tour guide
   b. customer relations specialist
   c. employee relations

B. INDUSTRIAL SALES

1. Manufacturers level 260.000 -289.458
   a. manufacturers sales representative
   b. sales engineer
   c. sales manager
   d. wholesale salesman

C. BUYER

1. buyer and assistant buyer
2. merchandise manager
3. purchasing agent 162.158
4. fashion coordinator

D. PHYSICAL DISTRIBUTION

1. receiving and stock clerk
2. warehouse manager
3. inventory control
4. forklift operator
5. delivery
6. dock workers--truck loaders and unloaders
7. packers

00010

E. RETAILING

1. Automobile Dealerships
   a. counterman
   b. salesman
   c. service salesman

2. Restaurant Franchises
   a. cooks and chefs
   b. waiters and waitresses

3. Fast Food
   a. production work
   b. counter work
   c. assistant manager
   d. manager
   e. supervisor

4. Speciality or Limited line shop
   a. retail trade sales workers

5. Chain Stores
   a. supermarket
   b. discount department store
   c. variety
   d. department store

F. RETAIL SELLING

1. Salesclerk 260,000 - 298.877
   a. apparel
   b. hardware
   c. housing
   d. food products and services
   e. automotive
   f. intangibles (insurance)

G. NON-SELLING RETAIL

1. See department store on non-selling occupations--personnel manager, receiving clerk, price marker, inventory control, controller, switchboard operator, tailor, delivery, installation, repair, parts counterman, cashier and bagger, department manager.

H. NON-STORE RETAIL

1. Mail order and catalog
2. Door to Door
3. Vending machine routemen

00011

I. SERVICE TRADES

1. Hotel-Motel
   a. maintenance
   b. maid
   c. housekeeper
   d. desk clerk
   e. reservationist
   f. supervisor
   g. night auditor
   h. assistant manager
   i. manager
   j. bookkeeper

2. Restaurant

   a. host or hostess
   b. manager
   c. waiter and waitress
   d. busboy and busgirl
   e. cook
   f. counterman

3. Service station
4. Barbershop
5. Beautician
6. Dry cleaning
7. Employment Agency
8. Bowling alley
9. Movie theater
10. Travel Agency

J. REAL ESTATE AND INSURANCE

1. Real Estate
   a. salesman
   b. broker

2. Insurance
   a. life sales
   b. accident and health sales
   c. property and liability sales
   d. underwriter
   e. claims adjustor
   f. claims examiner

K. FINANCE AND CREDIT

1. Banks
   a. teller
   b. general clerk
   c. loan officer
   d. branch manager

00012

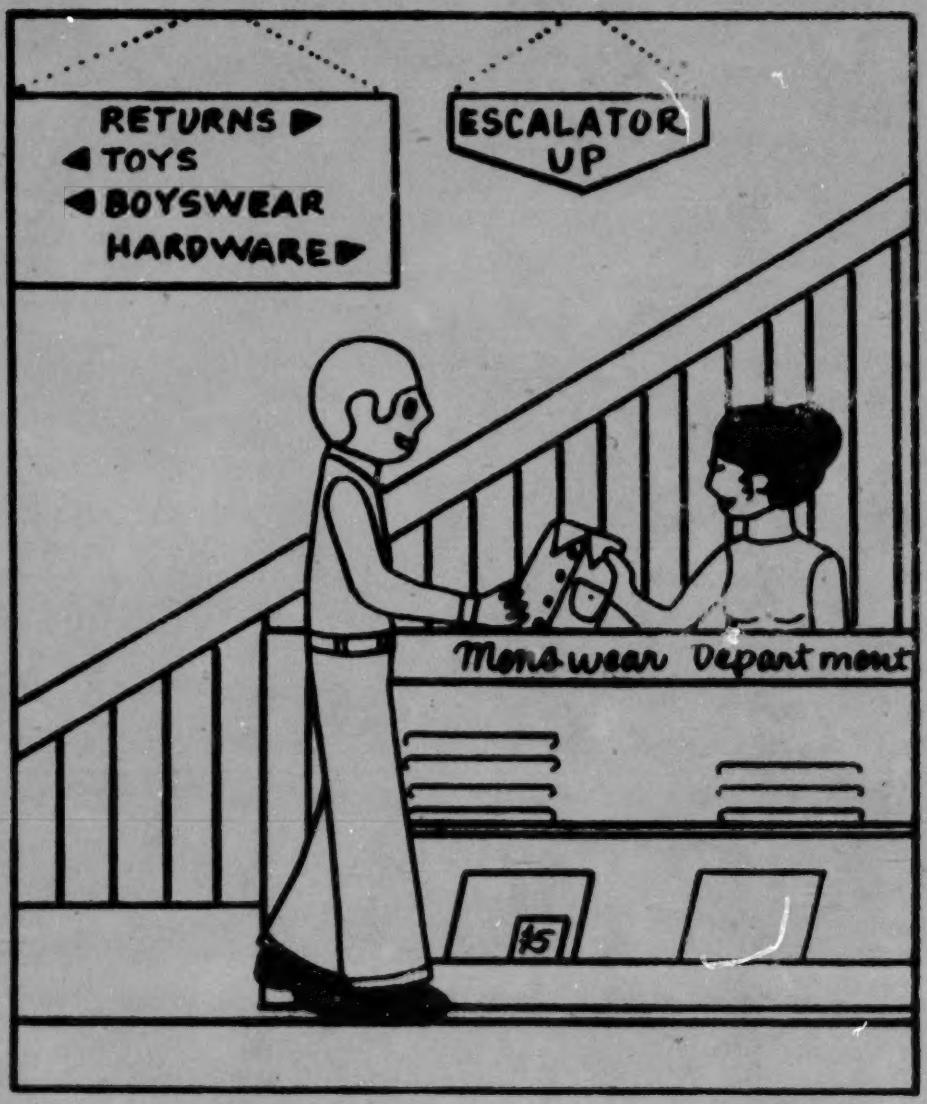
2. Stock Market
   a. stock and securities salesman
   b. accountant
   c. statistical analyist
   d. economist
   e. business administrator
   f. account executive

3. Loan Agencies
   a. credit check clerk
   b. billing clerk
   c. bookkeepor
   d. collections clerk
   e. credit manager

Refer to Occupational Outlook Handbook for descriptions, etc., for each occupation listed.

00013

department store



00014

V. THE DEPARTMENT STORE

As stated under Goals and Objectives, lack of time forced the workshop committee to limit its study of Marketing and Distribution to only three areas--the department store, fast foods, and the petroleum industry. The department store was chosen as the major area for study because department stores include such a wide variety of occupations, many of which are common to other types of retail operations as well as other areas of marketing and distribtuion.

The study of the department store has been divided into eight lessons, each of which may take one class period, but the teacher may choose to take more or less time on each lesson as seems appropriate. Each lesson has been divided into two parts: (1) the Teacher's Guide and (2) the Student Study Sheet. The Student Study Sheets should be duplicated in classroom sets, one set for each teacher. The sets should be bound in a protective cover and kept in the classroom rather than being checked out to the individual students. For easy identification, everything that is intended to be duplicated for student use has been put on blue paper.

Lesson 1: Department Store Organization

MEDIA FOR PRESENTING MATERIAL TO STUDENTS:

Area XI media center-Film "Opportunities in Sales and Merchandising" #20988
Transparency- "Organizational Chart for Department Stores"

SUGGESTED USE BY TEACHER:

Present organizational chart transparency to students.
Identify some of the specific jobs to help students realize the opportunities in the Department Store.
Show film "Opportunities in Sales and Marketing"

QUESTIONS FOR DISCUSSION

1. Have students identify jobs in film from the organizational chart.

2. Discuss what individual students know about jobs identified in the film:
   a. What is a department store?
   b. Do you think you are involved in a department store?
   c. Can you name any department stores?
   d. How are you involved in them?
   e. How does the merchandise reach the store?
   f. Show how the merchandise reaches the consumer.
   g. How much of the retail store is floor space and how much if office and storage? (Example-Sears 250,000 sq. ft. total
      116,000 sq. ft. used for selling)
   h. What is the space not used for selling used for? credit offices, customer service, training rooms, office, storage, employee cafeteria.

3. What characteristics and attitudes are necessary for promotion in sales and marketing occupations in Department Stores?

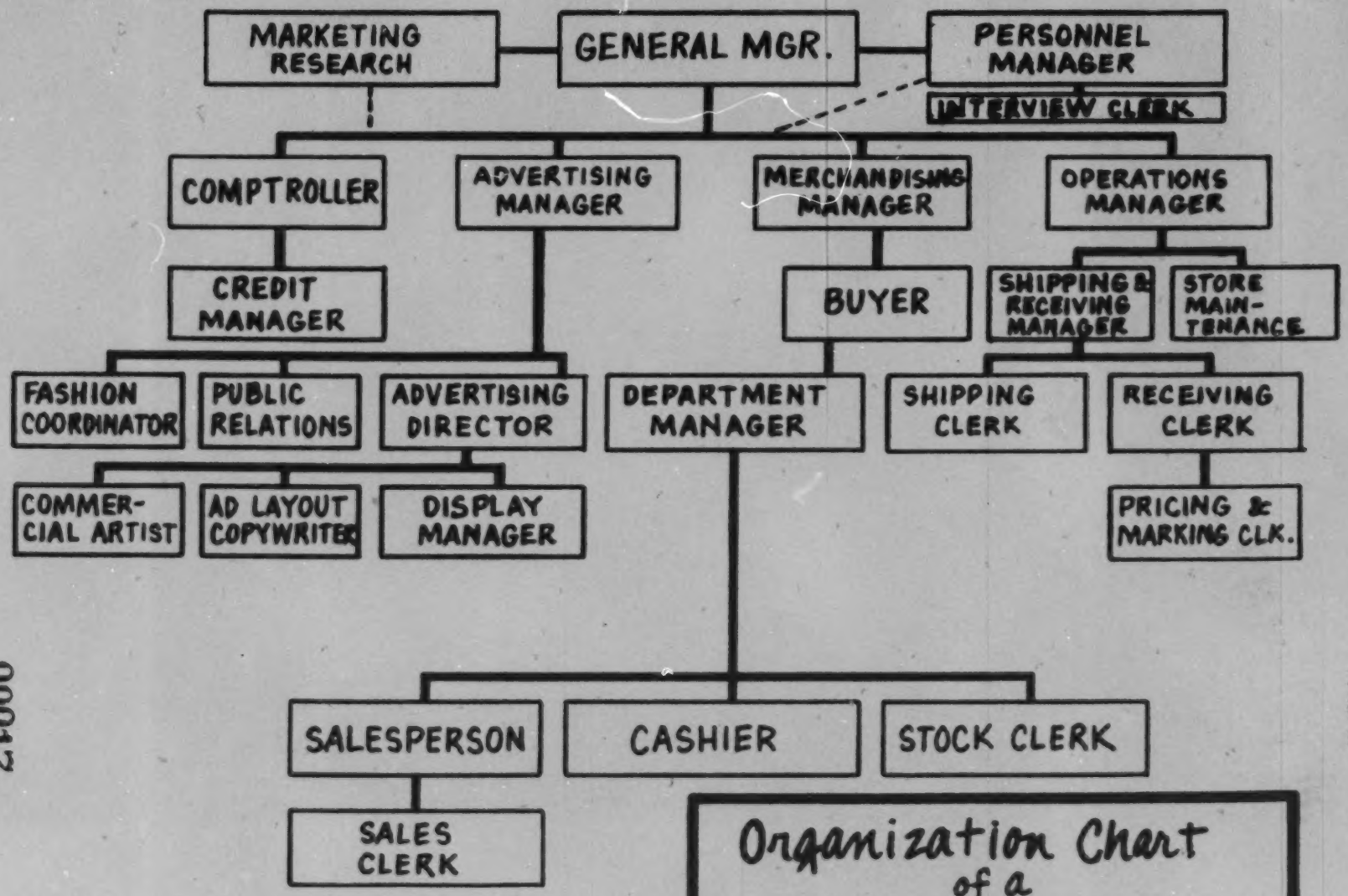
ADDITIONAL RESOURCE MATERIAL

"Merchandising as a Career" Published by The Institute for Research, Chicago, Illinois

"Department Store Occupations" Published by Chronicle Guidance Publications, Inc., Moravia, New York.

Outside speaker: Bud Reading, Younkers Department Store, Downtown

00016



Organization Chart of a Department Store

Transparency and Student Study Sheet (one each student)

00017

Lesson 2: Being a Sales Clerk

QUESTIONS FOR DISCUSSION: Use the questions following case study in Student's Study Sheet

SPEAKERS:

Ed Hermann, Sales Training, 244-0103

Bill Reichardt, Retailing in Men's Clothing, 255-7836

FILM:

"Selling as a Career", Area XI Media Center Catalog #20338 - 11 minutes

PHAMPHLETS: (Included on list of materials for purchase.)

"Career in Direct Selling"

"Retail Selling"

"Retail Salespeople"

"Should You Be A Salesperson"

00018

Student Study Sheet
(1 ea student)

Lesson 2: Being a Sales Clerk

INTRODUCTION

The sales clerk is a very important person in merchandising for the sales clerk not only makes the sales, but wins friends for the store. Customers often return to a store because of a favorite salesperson, and in the dress and millinery sections, in particular, some customers lean heavily upon the advice of a particular salesperson.

The sales clerk not only waits on customers, but keeps track of the stock at the counter, covers it or puts it away at night and re-dresses the counter in the morning.

Because the salesclerk has such direct contact with the customer, no one is more aware of customer wants and preferences. Buyers often consult with the senior sales clerk before ordering a doubtful item and in many stores it is customary for the sales clerk to fill out a "want slip" of customer inquiries at the end of the day, or a "complaint slip" listing complaints.

WORKING CONDITIONS

1. Usually clean, well-lighted and air-conditioned store
2. Working with people-some friendly, others unpleasant
3. On your feet much of the time
4. Year-round work with slack and busy seasons

HOURS WORKED

1. Usually 37-40 hours per 5-day week
2. May include some evening and week-end work

EARNINGS

1. Range depends on experience and education
2. Usually starts at minimum wage (presently $1.60 per hour)
3. After completion of probation period, the base salary can be $2.00 to $5.00 per hour depending on the experience
4. In addition to base salary, an employee may work on a commission basis earning him as much as $40,000 per year in unusual situations

PERSONAL QUALIFICATIONS

1. A liking for and an interest in people
2. Ability to get along with people
3. Be courteous and patient
4. Willing to learn
5. Be well-groomed

00019

Lesson 2: Sales Clerk (Continued)

TRAINING

Through distributive education programs in the senior high school, a student can enter a sales training course as early as his sophomore year. A student can begin his on-the-job paid experiences as early as his junior year which results in a two year on-the-job marketing program. Future education in this field is available in institutions of higher learning.

PROMOTIONAL OPPORTUNITIES

Many ambititious and qualified salespeople have advanced from sales clerk to head of stock, then to assistant buyer or buyer. This form of advancement has probably been the most common path to well-paid and responsible positions.

FUTURE OUTLOOK

It is expected that more than 150,000 job openings will occur annually through the 1970's.

CASE STUDY

Customer: Can you help me?

Salesclerk: (Cheerfully) Sure, just a minute. (Finishes conversation with friend and approaches customer silently.)

Customer: (Fingers merchandise, but drops it.) Never mind. Walks away.)

Salesclerk: (Calls over to other salesclerk.) Now what's the matter with her?

Questions for discussion:

1. What is the problem revealed in this sales dialogue?
2. Identify the selling errors made by the salesclerk.
3. How should the customer have been treated?
4. State the impression you think the customer now has in her mind of the employees in the entire store.
5. When should personal conversations be held at work?

00020

Lesson 2: Sales Clerk (Continued)

ACTIVITIES

1. Conduct an interview with a salesclerk in a local department store.

2. Prepare a one-minute presentation of a product sold in a department store.

3. Select an object in the room (or several objects) and list 4 or 5 selling points of that object.

00021

Student Study Sheet
(1 ea Student)

Lesson 3: Shipping and Receiving Clerk

READING MATERIAL: Chronicle Occupational Brief (Shipping and Receiving Clerk)

QUESTIONS FOR DISCUSSION:

1. Why should the young person who wants to make a career of retailing begin in the receiving department of a store?

2. Under what circumstances should merchandise that is received in the store be checked for quality as well as quantity?

3. If you were a receiving clerk of a wholesale hardware operation, would you give retailers the priviledges of returning unsold stock? If so, under what conditions would you do so? Would your answer be the same if the product were bread? If it were women's ready-to-wear?

4. Discuss the advantages and disadvantages of paying bonuses to checkers for discovering and reporting shortages and overages in shipment.

SUGGESTED STUDENT ACTIVITIES

1. Select two items of merchandise sold by your store. For each item list the safety precautions that must be observed in receiving and unpackaging (a) to prevent damaging the goods (b) to prevent personal injury to yourself.

2. Assume that you are the manager of a department store in our community. Draw a chart and discuss how the products you sell reaches the sales floor from the receiving dock area.

00022

Lesson 4: Buyer

QUESTIONS FOR DISCUSSION FROM STUDENT STUDY SHEET

1. The buyer's choice of merchandise is based on his observation of customers as they shop, on what they say, on how well the merchandise is moving, on what sales records show, on what goods the trade papers and other sources indicate that customers are buying, on what new products are on the market, and on what other stores are selling and at what prices.

2. Finding out what the customers want; knowing where to buy what they want; knowing how much and when to buy; selecting goods to fit the image, budget, and policy of the store; and keeping records of sales and stock turn.

3. When a customer fails to make a purchase, the buyer wants to know whether the merchandise was unsatisfactory as to size, quality, or price, as well as whether or not the caliber of salesmanship or other store services contributed to the loss.

ADDITIONAL RESOURCES AVAILABLE

Speaker: Ashby N. Baldock 244-3231 Buyer, Purchasing

Films: "The Care and Handling of Buyers" (Free Loan)
Modern Talking Picture Service
1212 Avenue of the Americas
New York, New York 10036

Phamplet: "Careers for Retail Merchandise Buyer"
Institute for Research
537 S. Dearborn Street
Chicago, Illinois

00023

Student Study Sheet
(1 each Student)

Lesson 4: Buyer

INTRODUCTION

The buyer sometimes has the dual job of buyer and department manager, immediately responsible for the entire merchandise which the department carries. This is an important job and a difficult one. Equally as much, if not more than the merchandise manager, the buyer must be able to anticipate public wants and understand likes and dislikes, because orders are placed many weeks before the merchandise appears on the sales floor.

WORK PERFORMED

1. Secure merchandise that will sell at a profit
2. Build toward satisfied customers
3. Know qualities of merchandise and attend style shows
4. Know the competition
5. Know the public and what they want

WORKING CONDITIONS

1. Usually works in pleasant offices and showrooms
2. Possibility of a great deal of traveling
3. Working with people

HOURS WORKED

1. Usually not a set number of hours
2. Good possibility of choosing hours and time off
3. Could be much time spent traveling

WAGES AND BENEFITS

1. Range from $100 per week to $13,550 per year in smaller stores
2. $9,000 to $30,000 in larger stores
3. 10-20% discount on merchandise that you purchase for your personal use.
4. Paid vacations and holidays

PERSONAL REQUIREMENTS

1. An ability and aptitude for trading
2. Leadership, imagination, aggressive
3. Well-groomed
4. Good physical condition

00024

Student Study Sheet
(1 each Student)

Lesson 4: Buyer (Continued)

TRAINING REQUIREMENTS

1. Without a college degree a buyer starts out as a salesperson.
2. A buyer can start out as part-time in a high school distributive education program
3. College graduates start out in store training program.

PROMOTIONAL OPPORTUNITIES

1. Excellent for one with good personality
2. With good intelligence and hard work, can be promoted to merchandise manager, or vice-president in charge of merchandising, or possibly to store president

FUTURE OUTLOOK

1. Good opportunity for both men and women
2. Great competition in the buying area

QUESTIONS FOR DISCUSSION

1. How does the buyer know what to buy?
2. What are some responsibilities of the buyer?
3. What does a buyer want to know about a customer's failure to purchase?

SUGGESTED STUDENT ACTIVITIES

1. Bring in three records that are presently on the list of top ten tunes. Play the three records in class. You are alloted $1000 for the purchase of records. How many of each record would you buy? Why?

2. Visit a store buyer of your acquaintance. Request him to explain to you the basic stock list used in his department or store. How was this list prepared? In what ways is it used as a basis for buying? Try to obtain a copy of this list.

3. Estimating customer demand is quite difficult. Give illustrations from your experience or by guessing from advertising, of merchandise for which local stores have either underestimated or overestimated demand.

4. By interviewing retail managers or buyers, find out what career opportunities are open in merchandising management. Prepare a report of your findings, showing the routes of advancement and positions open to beginners.

00025

Lesson 5: Fashion Designer

ANSWERS TO QUESTIONS FOR DISCUSSION FROM STUDENT STUDY SHEET

1. A style includes the characteristics of an item and does not change. However, a given style can be liked at one time--be in fashion--but fall into disfavor at other times, when it is still a style but is not fashion. For example, two-story colonial houses are of a style that was in disfavor for many years--now that they are in favor again, they are therefore fashionable.

2. Rapid communication today allows everyone to know of new styles and causes styles to become fashonable faster. Also, there is a modern emphasis upon the use of designers by manufacturers who feel that one of the best ways to capture the market and maintain sales is to develop new styles.

3. The basic American contribution has been the democratization of fashion, through mass production, mass advertising, and mass distribution. Style is within the reach of most people, at a low price.

ADDITIONAL RESOURCES AVAILABLE

Speaker: Marjorie Stiles (Younkers) 244-1112 Interior Decorating

Pamphlets: "Careers in Fashion Designing"

"Fashion Designer"

"Fashion Designers"

Refer to Part II, Suggested Equipment and Materials for Purchase

00026

Student Study Sheet
(1 each Student)

Lesson 5: Fashion Designer

INTRODUCTION

The designer must observe and analyze fashion trends as set at fashion centers all over the world. These include the wear of men, women, and children as well as accessories that go along with the clothing.

WORK PERFORMED

1. create original designs for new styles
2. supervise showings of their design
3. special designs for holidays and seasons
4. sketching, pattern making

WORKING CONDITIONS

1. some work in noisy, cluttered rooms with a small office
2. others in neat, well-ventilated areas
3. many spend a great deal of time traveling

HOURS WORKED

1. in the clothing industry 40 hours per week
2. self-employed or specialist would work many more during season changes and special events

WAGES

1. depends on experience and reputation
2. beginners $100 per week to $600 per week depending on experience
3. specialists earn to $26,000 per year and more

PERSONAL QUALIFICATIONS

1. creative ability
2. interest in style and fashion
3. be well-groomed
4. ability to work with people
5. be a salesman

00007

Student Study Sheet
(1 each Student)

Lesson 5: Fashion Designer (Continued)

TRAINING REQUIREMENTS

1. 2-4 years of formal education
2. courses in design, painting, art, costume hisotry, anatomy, pattern making
3. on-job-training on a very limited basis

PROMOTION

1. since one does not usually start out as a designer the opportunity to reach that level is good
2. start as copyist or sketcher
3. work up to assistant and then to designer after 2-3 years experience

FUTURE OUTLOOK

1. a very competitive field for both men and women
2. room for top level ability people
3. looking better with increased changes in style and fashion

QUESTIONS FOR DISCUSSION

1. What is the difference between "style" and "fashion"?
2. Why do present-day fashion tastes change more rapidly than in the past?
3. What has been the American contribution to fashion?

SUGGESTED STUDENT ACTIVITIES

1. Hang a dress and/or suit in front of the classroom. Write a paragraph on how you would redesign this wearing apparel to fit into today's design market.

2. Develop a pattern for sports wear.

3. Make a design that could be used as a school emblem.

Lesson 6: Credit Manager

ANSWERS TO QUESTIONS FOR DISCUSSION FROM STUDENT STUDY SHEET

1. Credit is widely used, and about a third of the retail volume is done on credit. Credit helps more people buy and helps make mass production and mass distribution possible.

2. Credit: (a) makes regular customers, (b) encourages more buying and with less "price-shopping," (c) builds confidence in the store, (d) often attracts a higher class of trade, (e) smooths business peaks. (onthe other hand, credit: (a) ties up capital, (b) is costly, and (c) may cause some customers to go to other stores.

3. The store investigates the "three C's": Character, Capital, and Capacity.

4. Credit increases a store's expenses, and thus higher prices are necessary. But, if credit raises sales volume considerable lower prices are possible.

ADDITIONAL RESOURCES AVAILABLE

Speaker: John Robb 243-2161 Credit Manager

Pamphlets: "Careers in Collection" American Collectors Association Inc.

"Credit Workers" Science Research Association

Also "Credit Collectors" Science Research Association

00029

Lesson 6: Credit Manager

INTRODUCTION

The Credit Manager is the person responsible for the supervision and directing of credit and collection activities. This means that the credit manager investigates the credit record and reputation of potential credit customers, approves or disapproves requests for credit and maintains records of accounts and the collection of these accounts.

PERSONAL QUALIFICATIONS

1. Honesty
2. Courtesy
3. Able to deal effectively with people
4. Ability to handle details
5. Good numerical ability

WORKING CONDITIONS

Generally works in a clean, well-lighted, air-conditioned private office.

EDUCATIONAL QUALIFICATIONS

1. College degree preferred in business administration with emphasis on (a) economics (b) finance (c) accounting (d) marketing
2. Two years experience in credit and collection work

HOURS WORKED

Depends on nature of credit work (general rule is 40-hour week with no work on weekends).

SALARY RANGE

Usually from $7800-$25,000

PROMOTIONAL OPPORTUNITIES

Credit managers may advance to positions as treasurers or comptrollers in some firms or general management positions in others.

Lesson 6: Credit Manager (Continued)

QUESTIONS FOR DISCUSSION

1. What part does credit play in our distribution system?
2. Compare the advantages of cash and credit methods of store operations. what are the disadvantages of each?
3. What information about the personal characteristics of the prospective customer should a merchant consider before granting credit?
4. How does the adoption of a credit policy affect the retail prices of a store?

SUGGESTED STUDENT ACTIVITIES

1. Collection letter: You, as the credit manager, are faced with the following problem. One of your charge customers has become two months behind in his payments. This person has been a charge customer for a period of 3 years and has always been prompt with his monthly payment. You, as the credit manager, must draft a collection letter to be sent to this customer. How will you draft this letter? Will you demand payment in full? Begin repossession procedures? Let him get by with this? Or just what will you do?

2. Credit Application: You as the credit manager have been given a credit application for an individual who wishes to purchase merchandise on the time payment plan (this means a certain payment for a given number of months). The application has the following information:
   a. Person is married with one child.
   b. Person has job which pays $8400 per year.
   c. Total indebtness is $2300 (Includes car, insurance etc).
   d. Person is renting a home not buying.
   e. Person has savings account and checking account at a local bank.
   f. Person maintains charge cards for 3 major oil companies.
   g. Person has not applied for credit at your store before.

   Would you extend credit to this person? Why?

3. In a written report, discuss the advantages and disadvantages of installment-credit selling from the standpoint of the credit manager.

4. Obtain credit application blanks from two or more stores. Explain why each item of information is needed by the store. Then compare the blanks for the kind and amount of information required.

00031

Lesson 7: Personnel Manager

ACTIVITIES:

1. Have students secure sample application blanks from various businesses. Practice filling in the application blanks. Discuss. Instead of using actual application blanks, teacher may prepare dummy application blanks and have them mimeographed for each member of the class.

2. Have two students conduct a mock interview in front of the class. Instead of having two students "perform" for the rest of the class, teacher may choose to divide entire class into groups of two (interviewer/interviewee), thus giving all class members a chance to participate. The interview situation might be something like this:

   The personnel manager is interviewing an applicant for a position as shoe salesperson in the men's shoe department of a department store. The applicant should have an application blank which he has filled out. The applicant may assume that he has just finished working at an A & W Drive-In as a car-hop. He should answer all of the interviewer's questions as realistically as possible. See next page for a list of suggested questions which the interviewer may choose to ask the applicant. The interviewer may choose what action he wishes to take as a result of the interview. Upon the completion of the interview, the class should discuss their reactions.

3. As a variation of the foregoing mock interview, have two interviews--one the "right" way to apply and one the "wrong" way to apply for a job.

ADDITIONAL RESOURCES AVAILABLE:

Speakers:	Robert Kilstrom, Personnel Director, Younkers	244-1112
	Phillip O'Brien, Personnel, Meredith Corp.	288-8511
	Ray Russell, Personnel, Hawkeye-Security Ins. Co.	243-2121

00032

Lesson 7: Personnel Manager (Continued)

SUGGESTIONS FOR THE INTERVIEWER

Questions the interviewer may ask:

1. What are your future vocational plans?
2. In what school activities have you participated? Why? Which did you enjoy the most?
3. Why do you think you would like to work for our company?
4. What jobs have you held?
5. What are your ideas on salary?
6. How do you feel about your family?
7. How much money do you expect to earn when you are 30 or 35 years old?
8. What characteristics are necessary for success in being a salesperson in a shoe store?
9. What interests you about selling shoes?
10. How do you feel about overtime work?
11. What disadvantages do you see in selling shoes? What are some of the advantages?
12. Do you like routine work?
13. Are you eager to please people?
14. What job in our store would you like if you had the freedom to choose and the ability to perform the job?
15. Have you saved any money?

It is suggested that these questions be used only as a guide and that the interviewer adapt these questions and his own to the person being interviewed.

00033

Student Study Sheet
(1 each Student)

Lesson 7: Personnel Manager

INTRODUCTION

The personnel field evolved during the last fifty years out of the employment function and management's concern for a more efficient and cooperative working force. The growth of personnel administration has paralleled the expansion of business and industry. There was little or no need for personnel specialists when most enterprises were small with a handful of employees hired, directed, and fired by the owner or manager.

DUTIES PERFORMED

1. Maintain adequate labor force.
2. Develop a cooperative, productive employee attitude.
3. Develop conditions for each individual to produce effectively.
4. Select and recommend people for jobs at all levels.
5. Administer employee evaluation program and deal with problems.
6. Develop sound job classifications and wage plan.
7. Develop and administer retirement benefit plans.
8. Terminate (fire) unsatisfactory employees.

SALARIES

Generally ranges from $12,500 to $22,000 depending on size of store and experience of individual.

WORKING CONDITIONS

Office is well-lighted, and usually air-conditioned.

HOURS WORKED

1. Generally 40 hours per week over a 5-day period.
2. Hours can be longer depending on the responsibilities.
3. There is also some travel involved.

00034

QUALIFICATIONS

1. Need general education--broad cultural background
2. Understand purpose, policies, and structure of organization he serves
3. Know characteristics of all jobs in organization
4. Knowledge of human characteristics--aptitudes, interests, and personality factors

EDUCATIONAL REQUIREMENTS

General Business Administration degree from college.

00035

Lesson 8: Public Relations

ANSWERS TO QUESTIONS FOR DISCUSSION FROM STUDENT STUDY SHEET

1. A company must consider its physical appearance and its relation with employees, unions, similar groups, government agencies, customers, community, and civic groups, and the business community (including competitors) of which it is a part.

2. A company may treat its customers as guests and find ways of making shopping more pleasurable and convenient; for instance, by installing "magic eye" door openers, by offering check cashing services, by welcoming newcomers, and by providing special guides for shoppers.

3. A department store holding a sewing school; a manufacturer of water skis lecturing on water safety; or several companies guaranteeing the costs of a special concert.

4. Answers will vary. As construction progresses, news releases describing the company, announcing the appointment of local people to important jobs in the store, and emphasizing the importance of the store to the community-might appear frequently. Previews for the press and leading citizens are held; the formal opening is a brief, impressive ceremony to which the public is invited.

5. To get the company's name, people, and products mentioned favorably wherever and whenever he can.

ADDITIONAL RESOURCES AVAILABLE:

Pamphlets:	"Publicity Work as A Career"	Institute for Research
	"Should you go into Public Relations"	New York Life Insurance

00036

Student Study Sheet
(1 each Student)

Lesson 8: Public Relations

INTRODUCTION

A public relations man is responsible for developing and maintaining public opinion favorable to the organizations using their services.

WORK PERFORMED

A good public relations man develops favorable public opinion by using the following modes of communication:

1. Written material (i,e., magazine articles, promotion booklets, letters to editors, etc.)
2. Spoken material (making speeches at civic organizations, meetings, radio and TV announcements)
3. Graphic materials (billboard displays, photographs)

PERSONAL QUALIFICATIONS

1. Creative, Patient, Aggressive, Sympathetic, Understanding.
2. Must believe in the product or client he represents.
3. Should be able to communicate orally, but also be a good listener.

EDUCATION

College graduate--degree in one of three areas (Liberal Arts, Business, or Journalism)

SALARY AND HOURS WORKED

Hours are extremely flexible.
Salary ranges are extreme starting from $6,000 per year to $50,000 depending on responsibilities and size of organization.

FUTURE OUTLOOK

Public relations is a rapidly expanding field. Qualified "idea" people are in great demand. People employed in public relations are quite well paid. Men and women have great opportunity, both jobwise and salarywise.

00037

Lesson 8: Public Relations (Continued)

There is hardly any organization today that does not conduct some kind of public relations program. In future years, as businessmen become more sophisticated, there should be a tremendous growth of public relations services into the small company area.

QUESTIONS FOR DISCUSSION

1. What factors must a company consider in establishing good public relations?
2. In what ways might a company work toward establishing good public relations with customers?
3. Give three examples of how a business builds good community relations through special events.
4. What are some publicity efforts that might take place in opening a new retail store?
5. What is the job of a public relations man?

SUGGESTED STUDENT ACTIVITIES

1. Find an example of public relations as found in one of the following areas: TV, radio, newspaper, civic organizations, or your own personal experiences. After reviewing the source, write a report in 100 words or less evaluating and adding comments as to the effectiveness of the example.

2. You, as public relations person, must develop a brochure promoting your company to future employees. Draw up a dummy copy of this brochure ready to go to the printer. It should include all the good aspects of the store. Use good color scheme, pictures, and unique folding design of the brochure. It should catch the eye of the public.

3. You, as the public relations person, have been invited to Ankeny, Iowa for the opening of one of your new department stores. You have been advised that you will be asked to give a short speech on the advantages and benefits of having the new store located in the community of Ankeny. Prepare a 3-5 minute speech promoting the opening of a store in the community.

fast food industry

VI. THE FAST FOOD INDUSTRY

The following pages are intended to be only a brief or outline on the work that may be done relating to the Fast Food Industry. The teacher will need to enlarge upon the lesson sheets being provided.

Lesson 1: Introduction To The Fast Food Industry

The fast food industry is distinguished from other types of the food industry by these basic facts:

a. The customers obtain their own food (they go up to a counter and order)
b. Lower prices on food
c. Fast food buildings are distinctive and quite small
d. Limited menu
e. Fast service and food is usually already prepared
f. Large volume selling
g. Great use of processed food

QUESTIONS FOR DISCUSSION:

1. Can you think of any fast food establishments in your area?
2. Why do you think the fast food business is such a large industry today?
3. Where would you prefer to eat? Fast food or restaurant?

ACTIVITIES:

The film "History of McDonald's" is available. This film gives an orientation to the fast food industry and is narrated by Mr. Fred Turner, the president of McDonald's. To obtain this film, contact Dean Sage McDonald's, 4812 S. W. Ninth, Telephone 284-9295.

00040

Lesson 2: Production and Counter Help

A. PRODUCTION: This area involves the production of the goods to be sold. This covers all grill work, making of french fries, making shakes, and also maintaining a clean area.

QUALIFICATIONS:

1. 16 years old (federal regulations limit the hiring of individuals under 16)
2. Willing to work varied hours
3. Maintain good personal hygiene
4. Have pride in self and in work
5. Enjoy working with all types of people
6. Work under pressure effectively

SALARY:

Begin at $1.60 per hour--could advance to $3.00 per hour.

HOURS:

a. Full-time employee: 5 day week (Monday through Friday). Usually have an 8 hour shift. The time of the shift may vary e.g., 7-3, 11-7, etc.)

b. Part-time employee: generally works during Rush periods--11:00 a.m. to 1:00 p.m., and from 5:00 p.m., to 7:00 p.m. The part-time worker also works nights, weekends, and holidays. This person will average between 25 and 30 hours per week.

B. COUNTER HELP: These persons are responsible for waiting on customers in the proper way--Fast and Courteous. These persons are the last ones to see the food before the customer gets it and it is their responsibility to make sure that it is done properly. They must also operate the cash register in an efficient manner.

QUALIFICATIONS:

Same as for Production workers plus:
1. Run a cash register and make change
2. Able to add quickly and accurately
3. Be courteous
4. Must have a consistently good disposition
5. Honesty
6. Be customer oriented

00041

Lesson 2: Production and Counter Help (Continued)

SALARY: Same as for Production workers.

HOURS: Same as for Production workers.

QUESTIONS:

1. What would you add to qualifications for these two jobs?
2. What would you do with a customer who is very obstinate when ordering his food?
3. Have you ever had an experience in which you could see these qualifications put to use?

ACTIVITIES:

1. Take a tour of a fast food business.
2. A film called "Six Steps to Success" is available. This film deals with the training of production and counter workers and is available by calling Dean Sage at McDonald, 4812 S. W. Ninth, Telephone 285-9295.

Teacher's Guide and
Student's Study Sheet
(1 each Student)

Lesson 3: Assistant Managers

The assistant manager works closely with the manager. There is usually one assistant per shift, and it is his responsibility to run this shift. He will call out production and make sure that everyone is doing his job. This person will also help the manager with his book work. What he is really doing is learning how to be the manager.

QUALIFICATIONS:

1. He must be a motivator of other employees.
2. He must be a good customer relations man.
3. He must have at least a high school education.
4. He must have at least 1 year experience in production and counter work.

SALARY: $9,000 to $12,000 per year.

HOURS: -- 50 hours per week
-- hours vary due to shift work

QUESTIONS:

1. Why should an assistant manager be a motivator of people?
2. Do you think it is important to have at least 1 year experience in production and counter work before you become an assistant manager?

ACTIVITIES:

1. Invite a speaker from a fast food business to discuss his job.
2. Show a CASE STUDY: One of your employees to be "lost" on his job. What would you as the assistant manager do?

00043

Teacher's Guide and
Student's Study Sheet
(1 each Student)

Lesson 4: Unit Managers (Store Managers)

This person is responsible for everything in the store. He does all the ordering, hiring of new employees, and scheduling of work shifts. He also serves as the link between the store and the unit supervisor.

QUALIFICATIONS:

Same as for assistant manager plus:
1. 3 years experience
2. Know total operations of the store
3. Willing to work long and varied hours
4. Ready to accept great responsibilities

SALARY: $12,000 to $15,000

HOURS: 8:00 a.m. to 6:00 p.m.

QUESTIONS:

1. Why should the manager know the total operations of the store?
2. Why is it that if something goes wrong, regardless of who is at fault, the manager usually gets blamed?

ACTIVITIES:
1. Invite a store manager to your class.
2. Have the students set up a schedule for a certain number of employees.
3. Have the students "Train" another student in some area of fast food.
4. Give the students a set of circumstances and let them order materials for the store.

00044

Lesson 5: Unit Supervisor

This individual is really responsible for what happens at the store. His most important job is training the managers under him. He must check on the work of all people at the store. Make sure that quality food is being served. He must make sure that the managers are training employees properly. It is also his responsibility to make sure that all of his managers are doing the same thing. This person also will be involved in public relations. He is also responsible for volume building and ideas.

QUALIFICATIONS:

1. Successful unit manager for at least 1 year.
2. Good business knowledge (accounting, inventory, budgets, etc.)
3. Realize business as an on-going activity.
4. Know the unit inside and out.
5. Must be able to deal with people, communicate with them, and sense their needs.
6. Be good at public relations.

SALARY: $15,000 -- $18,000

QUESTIONS:

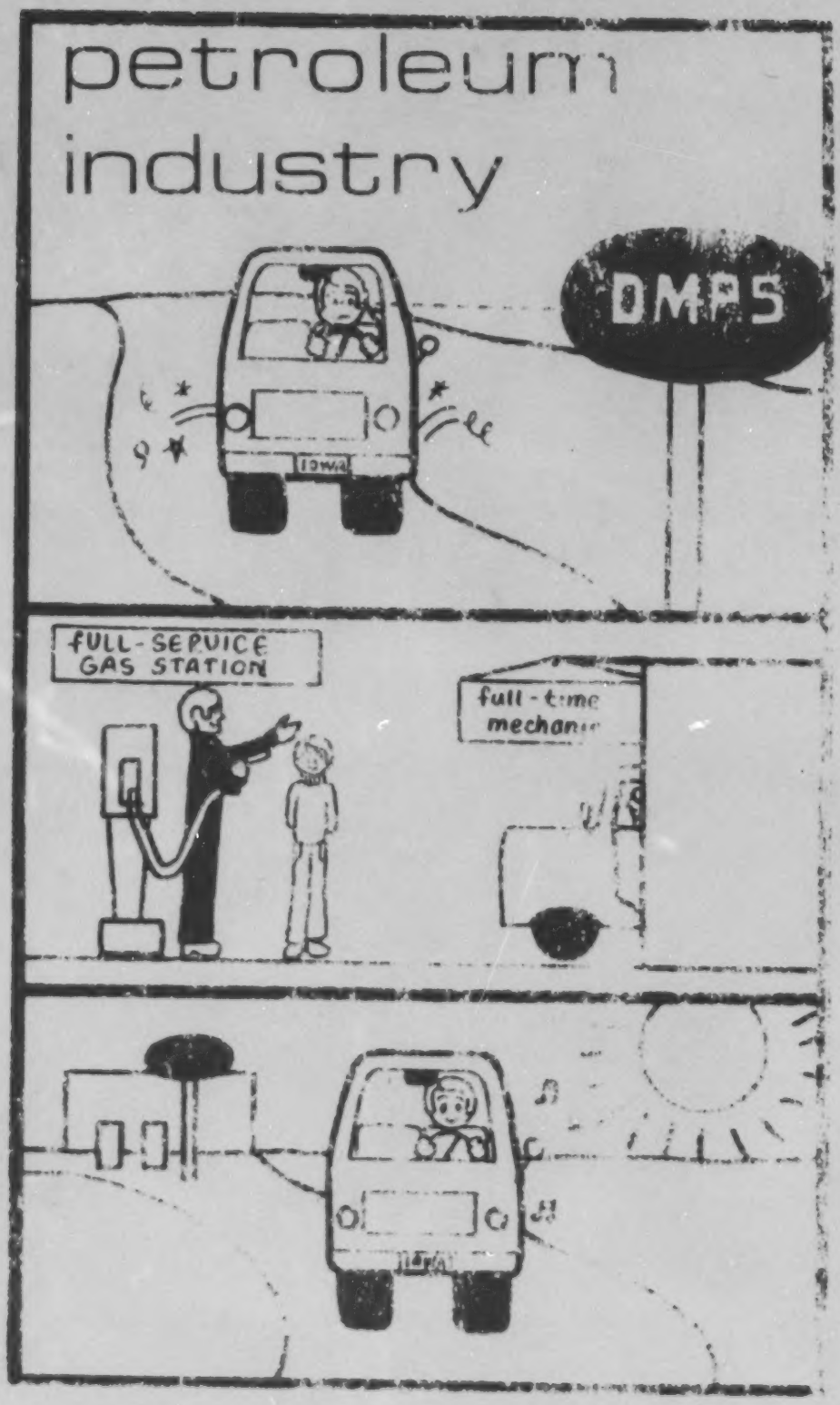
1. What do we mean that business is an on-going activity?
2. Why should this person be good at public relations?

ACTIVITY:

1. Have a speaker. Let him go through a personnel package with a student and a unit supervisor.

2. Develop a public relations case study: Suppose you sense that you have a lot of trade from one school. Discuss some possible public relations activities which will secure these customers for you.
3. Set up a new promotion for the business.

00045


petroleum
industry
DMPS
IOWA
FULL-SERVICE
GAS STATION
full-time
mechanic
IOWA

VII. THE PETROLEUM INDUSTRY

The following pages are intended to be only a skeleton outline of the work that may be done relating to the Petroleum Industry. The teacher will need to enlarge upon the lesson sheets being provided.

Lesson 1: Introduction to Marketing and Distribution in the Petroleum Industry

MEDIA FOR PRESENTATION TO STUDENTS

1. Bulletin board (see suggested idea enclosed)
2. Film, "How to Select a Career". Call Mr. Dallas Lawter, Phillips Petroleum Co., 276-9261, to arrange for free loan of the film.
3. Organizational Charts - Retail Oil Station Dealer
   - Wholesale Oil Distributor
   - Typical Parent Oil Company

In addition to having copies of each chart for each student in the class, the teacher should make transparencies for use with an overhead projector.

SUGGESTED METHOD OF PRESENTATION

1. Present organization charts by use of transparencies. Identify some of the specific jobs to help students realize some of the opportunities in the petroleum marketing field.
2. Show film, "How to Select a Career." Discuss.
3. Questions for discussion:

   a. What jobs can you identify which are both on the organizational chart and also in the film--correlate the chart and the film.
   b. Discuss what individual students know about jobs identified in the film and the charts. Are you connected in any way with the oil industry? Have any of you worked around a service station? How do the oil station managers get their gasoline? How do large places of business and schools get gasoline? How do large places of business and schools get their heating oil? What differences and similarities can you see working in a department store and working as a driveway sales attendant?
   c. Discuss what characteristics and attitudes are necessary in the petroleum marketing and distribution field.

00047

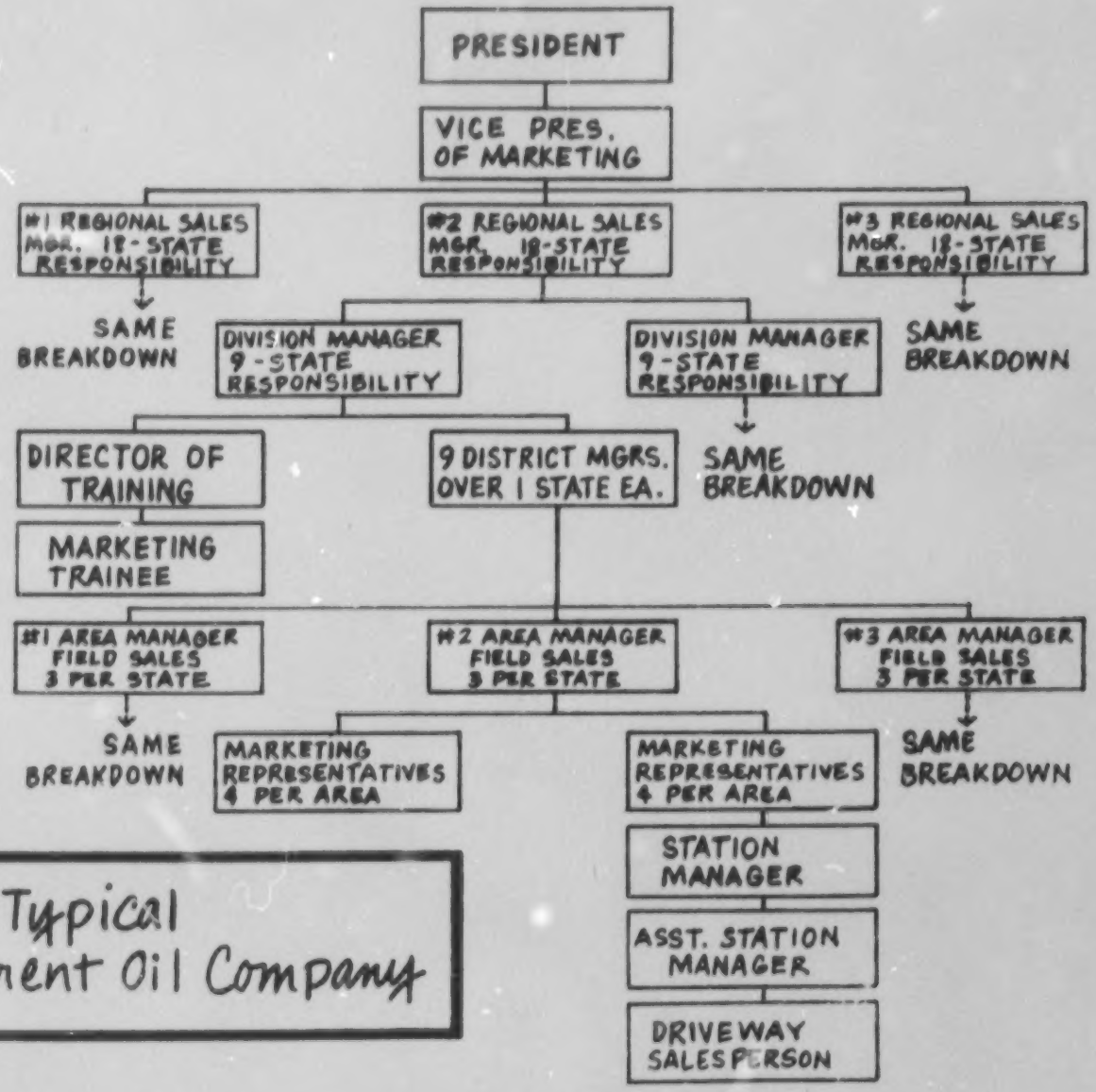
The Petroleum Industry (Continued)

4. Additional Resource Material

a. Speaker: Mr. Dallas Lewter Phone 276-9261
Phillip's Petroleum Company
3900 Merle Hay Road
Des Moines, Iowa 50311

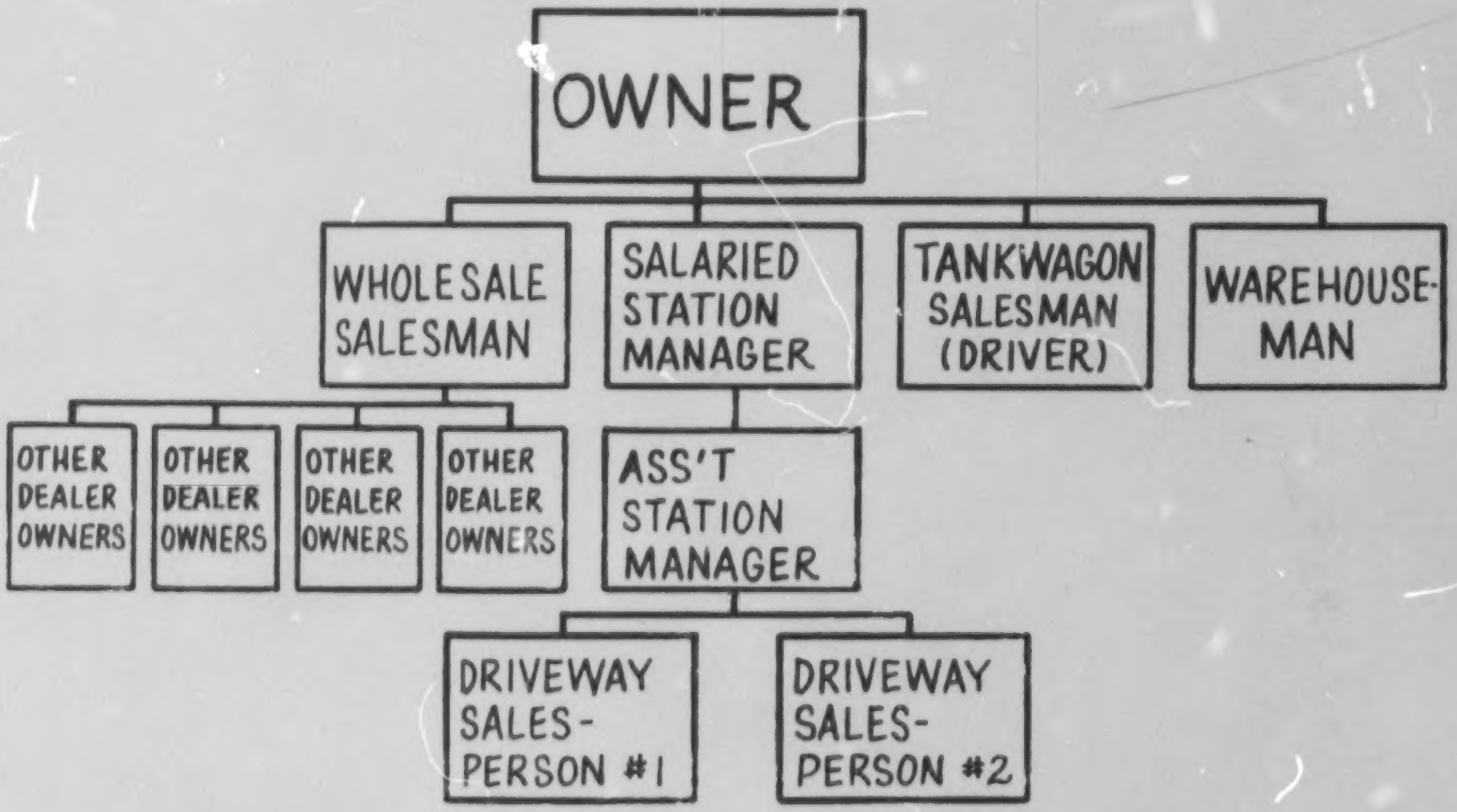
b. Reading Reference: Occupational Outlook Handbook

00048

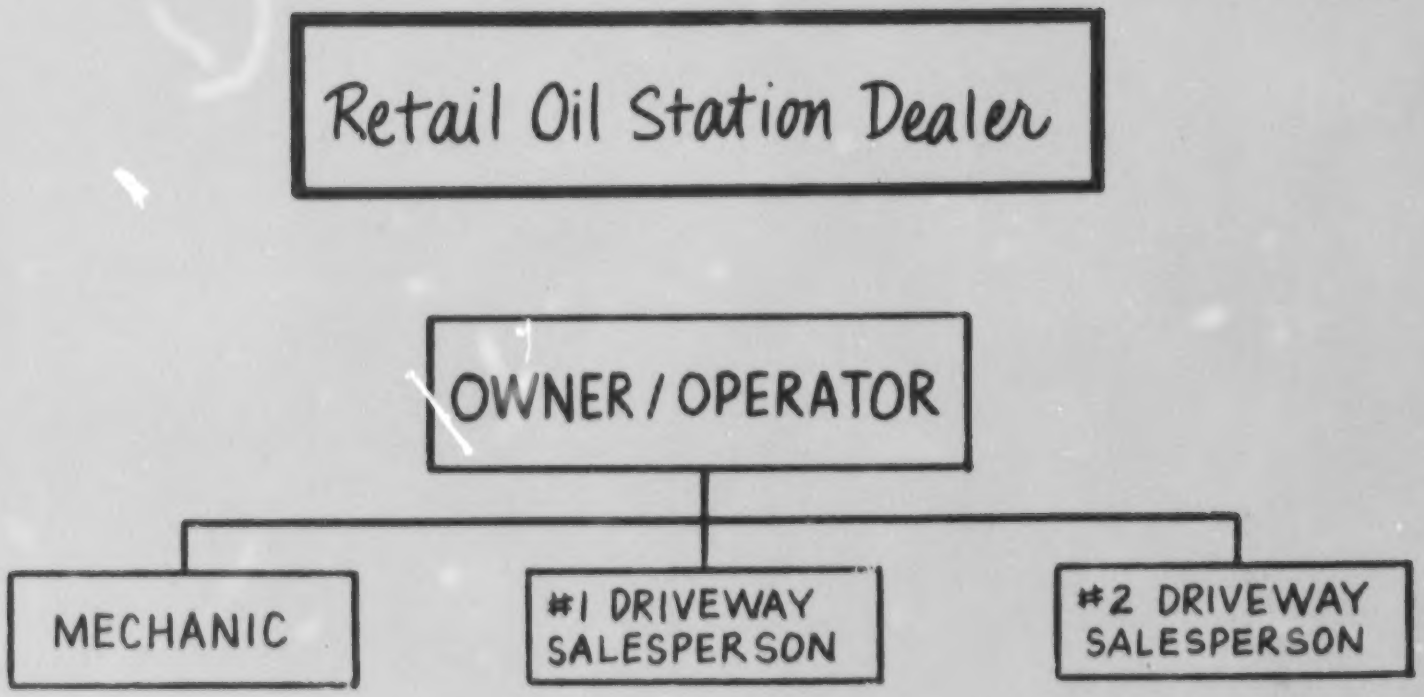


A Typical Parent Oil Company

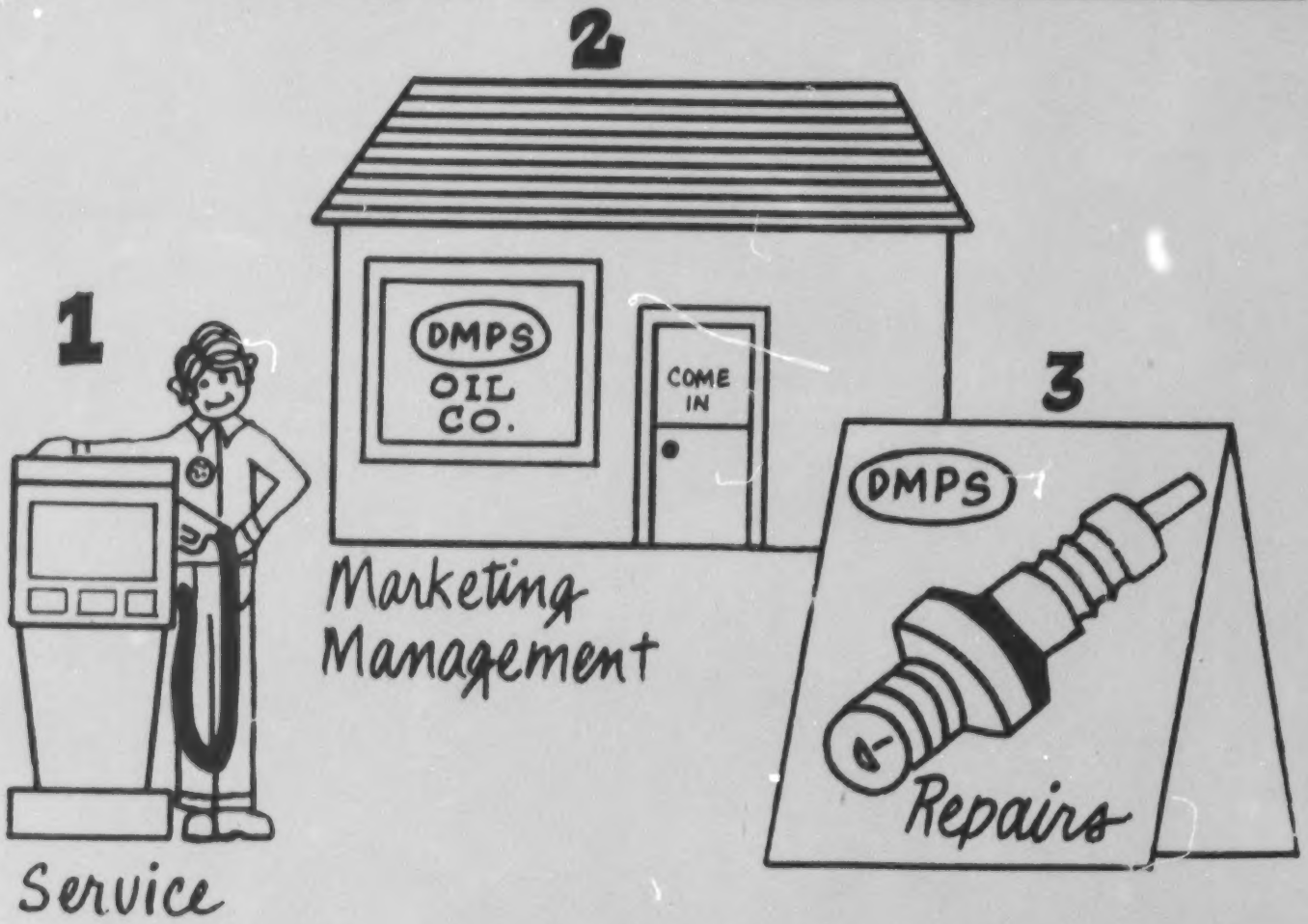
Wholesale Oil Distributor



00050


Retail Oil Station Dealer
OWNER / OPERATOR
MECHANIC
#1 DRIVEWAY SALESPERSON
#2 DRIVEWAY SALESPERSON

Career Opportunities in Petroleum



00052

Lesson 2: Driveway Salesperson

SUGGESTED READING MATERIAL

"Automotive Service Station Attendant"

FILM

"Courtesy, Your Best Seller" Mr. R. L. Johnson
Standard Oil Division, American Oil Co.
Room 250
3839 Merle Hay Road
Des Moines, Iowa 50310

ACTIVITY

Student simulation of how to service a car. The following 6 points must be covered by students participating in this activity:

1. Meet and greet customer. Ask for fill-up.
2. Ask if you can vacuum the car.
3. Check under the hood (oil, air filter, fan belt, etc.)
4. Clean windows.
5. Check tires.
6. Complete sale and ask customer to return.

Set up simulated car by placing chairs in the classroom accordingly. Have each student go through the six check points servicing a customer in the car.

Remind students that the basic reason for all service is to sell. The driveway attendant is a sales person and the way he services a car shows his ability to sell for his employer. His primary function is to sell all things needed on the car he is servicing. For example, when an attendant vacuums a car he is to look for the oil change sticker and check the odometer to see when the car was last serviced. If servicing is due or overdue, he is to recommend to the customer that his car needs servicing and asks whether an appointment date for servicing can be arranged. The same kind of thinking goes for each of the 6 service points.

Student Study Sheet
(1 each Student)

Lesson 2: Driveway Salesperson

WHY SERVICE STATION ATTENDANTS ARE NEEDED

In the United States today there are over 90 million automobiles, and the number keeps growing steadily. At one time or another every one of these automobiles is serviced at a service station. They need gasoline, oil, and lubrication, perhaps even repair. Attendants are needed to take care of these automobiles. You can see that service station attendants are in great demand today and that even more will be needed in the future.

FILL IN CORRECT WORK IN SPACES PROBIVED:

1. There are over _____ million automobiles in the United States.

2. _____ automobile is serviced at a service station at one time or another.

3. Automobiles need _____, _____, and _____.

INCREASE IN NUMBER OF AUTOMOBILES

The number of automobiles on our highways keeps growing steadily for several reasons. In our prosperous society, many people can afford to buy cars. Also, our population keeps growing, and this has increased the number of drivers. By 1975 four million people will be reaching legal driving age each year, and this number will grow. Most people, too, have more free time to drive their automobiles, and they also find driving more enjoyable on our superhighways. And many people have moved to the suburbs where they have to have a car to get around. These are some of the reasons why the number of cars in use on our roads will continue to increase.

4. People have more free _____ to drive their automobiles.

5. By 1975 there will be approximately _____ million new automobile drivers every year.

6. Many people have moved to the _____ where it is necessary to own a car.

7. In our prosperous society many people can _____ to buy cars.

00054

Lesson 3: Service Station Mechanic

Locate the job on all 3 organizational charts

SUGGESTED READING MATERIAL

Career Brief, "Automotive Mechanic", D.O.T. 620

Occupational Outlook Handbook, Bulletin 1700. Also check index under "Mechanics and Repairmen."

SUGGESTED ACTIVITIES

1. Make arrangements for class, small group, or mechanic to talk to class about job, scope, and job opportunities as a mechanic in a service station.

3. Have student bring in a motor bike and give the class a mechanical demonstration such as tune-up.

4. Contact station owner or station mechanic to give a demonstration of a typical repair before a class, such as the rebuilding of a carburetor.

00055

Lesson 4: Assistant Manager and Station Manager

SUGGESTED READING

"Salaried Service Station Personnel, Duties and Responsibilities"
"Personal Qualities Necessary for Good Service Station Operation and Management.

OPPORTUNITIES FOR DISCUSSION

Discuss pertinent points in the Suggested Reading Material.

SUGGESTED ACTIVITY

Explore the activities and duties of an assistant manager and service station manager through a check list that the student may take on his own time to a neighborhood service station. Before students call on a service station, they should contact Mr. Dallas Lewter, Phillips Petroleum Co., Phone 276-9261, and he will notify the station manager that a student will be calling on him. The following listed Phillips 66 stations will participate in the project (but check with Mr. Lewter first!):

Airport 66 Service, 2016 Army Post Road
Douglas Avenue 66 Service, 4402 Douglas
Euclid Avenue 66 Service, 2849 Euclid
Merle Hay 66 Service, 4151 Merle Hay Road
South-Vue 66 Service, 4000 S. E. 14th St.
Plaza 66 Service, 6400 Douglas
Urbandale 66 Service, 7500 Douglas
West Grand 66 Service, 6272 Grand
West-Vue 66 Service, 8540 Hickman Road
Windsor Heights 66 Service, 73rd and Buffalo Road

The check list, "Station Cleanliness Inspection Form", is to be filled out at the station and brought back to class for a written summary report to be discussed in class. Any "NO" answers on the form would suggest that there be a written recommendation for improvement.

00056

Student Check Sheet
(1 each Student)

STATION CLEANLINESS INSPECTION

NAME OF STATION: _____

LOCATION OF STATION: _____

1. Lube Bay:
   - A. Tools in Order — Yes ___ No ___
   - B. Floors Clean — Yes ___ No ___
   - C. Lube Equipment Clean — Yes ___ No ___
   - D. Displays Clean — Yes ___ No ___

2. Driveway Area:
   - A. Pumps Freshly Painted — Yes ___ No ___
   - B. Curbs Painted — Yes ___ No ___
   - C. Displays Neat — Yes ___ No ___
   - D. Landscaped and Neat — Yes ___ No ___

3. Restrooms:
   - A. Men's
     1. Toilet tissue available — Yes ___ No ___
     2. Hand towels available — Yes ___ No ___
     3. Soap available — Yes ___ No ___
     4. Mirror clean — Yes ___ No ___
     5. Commode clean — Yes ___ No ___
   - B. Ladies
     1. Toilet tissue available — Yes ___ No ___
     2. Hand towels available — Yes ___ No ___
     3. Soap available — Yes ___ No ___
     4. Mirror clean — Yes ___ No ___
     5. Commode clean — Yes ___ No ___

00057

Student Study Sheet
(1 each Student)

Lesson 4: Station Manager and Assistant Manager

PERSONAL QUALITIES NECESSARY FOR GOOD SERVICE STATION OPERATION AND MANAGEMENT

There were several service stations in the area, but The Town Service Station was always the busiest. One customer gave a good reason for the success of The Town Service Station. He said, "I tried the other stations, but I found that I got much better service at The Town. I like the manager. He makes me feel that my business is important to him and that he will prove it by taking good care of my car." The customer was right. The Town Service Station was busy and prosperous because it had a good manager. What does it take to be a good service station manager?

1. INITIATIVE

Initiative is the ability to get things started or done without needing to be told what to do. The service station manager of The Town Station shows initiative when he makes customers feel that he wants their business and is glad to take care of their needs. You try to find new and better ways to do things by analyzing problems and investigating new ideas. You read magazines and books on service station operation and management so that you can improve your service.

Encircle the letter of the item that best completes each statement.

1. Initiative is defined as
   a. a trust
   b. the inability to make decisions
   c. the ability to get things started or done without needing to be told

2. The manager with initiative
   a. looks for helpful ideas
   b. tries to find better ways to do things
   c. investigates new ideas
   d. all of these

2. FRIENDLY AND POSITIVE ATTITUDE

Customers keep coming back to The Town Station because of its "service". Service is the key word in service station operation. You usually give good service if you are friendly and have a desire to work with and help people. Your friendliness is shown by your interest in people and the respect you give them. You show the same interest and respect toward your employees as you do toward your customers.

00058

Lesson 4: Station Manager and Assistant Manager (Continued)

3. The key word in service station operation is

   a. gasoline
   b. tires
   c. service

4. Friendliness is shown by

   a. a desire to work with people
   b. an interest in people
   c. respect for people
   d. all of these

3. LEADERSHIP QUALITIES

Since as a manager you either own the service station or manage it for someone else, your job is to direct the work of the station employees. If you have the right attitude toward your duties and responsibilities, your attendants will want to do a good job, too. You know that teamwork is necessary for a station to succeed. You can make your attendants feel like members of a team by putting them at ease, making them feel important, and giving them a feeling of security.

5. As service station manager, you

   a. do nothing
   b. spend all your time repairing automobiles
   c. do all the work yourself

6. You should

   a. make the attendants feel like members of a team
   b. put the attendants at ease
   c. make the attendants feel important
   d. all of these

4. RESPONSIBILITY

You are responsible for the successful operation of your service station. You must account either to yourself as the owner or to those who own the station. You must show genuine interest and concern in every problem and try to solve each one as quickly and efficiently as possible. You must listen attentively to customer complaints and take care of them immediately.

7. As service station manager, you are

   a. responsible for the successful operation of the station
   b. spend all your time repairing automobiles
   c. neither of these

00059

Lesson 4: Station Manager and Assistant Manager (Continued)

8. You should

   a. not be interested in every problem
   b. immediately take care of customer complaints
   c. not try to solve problems

5. ABILITY TO ORGANIZE

To organize means to coordinate the functions of the station operation so that the work can be done in an orderly and efficient manner. To organize successfully, you must:

   a. Set up definite operating policies and procedures
   b. Plan and schedule work so that each employee is using his skills and abilities
   c. Display merchandise so that it will attract customers to buy
   d. Plan the most efficient use of equipment and supplies

9. The ability to organize involves

   a. coordinating the functions of the station operation
   b. operating without specific operating policies and procedures
   c. neither of these

6. ABILITY TO MAKE DECISIONS

In a busy service station things happen fast. There may be a rush of customers at a time when the station is short of help. An emergency call may come in when all the attendants are busy. Equipment may break down when there is a lot of work to be done. These and other problems arise frequently. Quick decisions must be made so that everything moves smoothly and customers are satisfied. You must approach problems calmly and rely on your judgment to make the right decisions.

10. To make the right decision, you must

   a. rely on your judgment
   b. put off decisions until the next day
   c. call the district manager

7. PERSERVERANCE

Perseverance means the ability to stick to a task or a purpose, no matter how hard or troublesome it may be. Your goal as a service station manager is to achieve success in the service station business. You have to develop the ability to stick to it even though you have many problems. You must accept personal inconvenience as port of your job, because the long hours often keep you at the station when you would like to be at home with your family. You must concentrate on building up your business by

Lesson 4: Station Manager and Assistant Manager (Continued)

gaining the confidence of the people in the community. While you attract and keep customers with the quality of your service, you must also be interested in people and their problems. If you have perseverance, you will find that a successful service station operation is an interesting and rewarding career.

11. Your goal as service station manager is

    a. to close early
    b. to be successful in the service station business
    c. to hire less help than he needs

12. You should

    a. have the ability to stick to the job
    b. accept personal inconvenience in your job
    c. gain the confidence of the people in the community
    d. all of these

00061

("Salaried Service Station Personnel Duties and Responsibilities" furnished by courtesy of Phillips Petroleum Co.)

Student Study Sheet
(1 each Student)

Lesson 4: Station Manager and Assistant Manager

SALARIED SERVICE STATION PERSONNEL DUTIES AND RESPONSIBILITIES

SECTION 1

1 - 1. THE SERVICE STATION MANAGER WILL:

1. Serve as Manager of the station and the business in an aggressive manner by supervising the personnel to see that they maintain the proper appearance of the station, render service as prescribed in a friendly manner, and follow aggressive, but not high-pressure, sales practices. By personal example, perform sales and services and supervise others in their performance so as to create a favorable business climate for the station. Salary range -- $10,000-$13,000 year.
2. Personally solicit new business and require all employees to do likewise.
3. Be personally responsible for protection of company cash and credit card delivery tickets received by station until they are delivered to the bank or post office in the prescribed manner. Bank deposits are to be made daily.
4. Make physical verification inventory of tires and batteries, plus one additional product line daily and post verification on stock record card.
5. Make inspections of physical condition and cleanliness of station daily, or more often if necessary. Require all men to follow housekeeping and preventative maintenance schedules.
6. Make all required sales and inventory reports on schedule. Be responsible for all stocks and monies, make remittances on time, reporting any variations or unusual occurrences to Station Supervisor.
7. Maintain and submit all required employee work records, arrange work schedules so that all men are treated fairly.
8. Post tell-tale report and commission earnings daily. Keep men informed of commissions earned so as to keep work and sales incentives in mind at all times.
9. Prepare work and business flow charts as required and recommend changes of manpower and operation to Station Supervisor in accordance with work load and income.
10. Hire, supervise and, if necessary, discharge service station salesmen. The Station Supervisor should be consulted before terminating employees for reasons other than unsatisfactory work. Interview job applicants and maintain file of desirable potential employees.

00062

1 - 1. The Service Station Manager Will: (Cont'd)

11. When a new employee is hired:
    A. Give him a copy of the "Handbook for Employees of Phillips Petroleum Company Salaried Service Station Operations" and explain it to him.

    B. Explain that he will be on probation for the first 90 days insofar as continued employment is concerned. During this 90 days the employee's references and previous work record should be checked. From this and an evaluation of his work performance, a recommendation as to his continued employment will be made to the Station Supervisor before he completes his probationary period.

12. Keep posted at all times:
    A. Standards of personal conduct

    B. Safety regulations

    C. Hours of work and work schedules

    D. Station commission sheets

    E. Federal and State wage and hour regulations. (In stations doing $250,000 gross annual sales only).

    F. Equal opportunity employer posters.

    G. Occupational Safety and Health Act Poster and Report

    H. All other posters required by law.

13. Make a wage rate schedule available to employees at any time they may wish to see it. The wage rate schedule will not be posted for public view.

14. Make certain that all new employees follow the prescribed Vanguard salesman training and development program outline as follows, without exception:

    Lesson #1 - the first day
    Lesson #2 - the balance of the first week
    Lesson #3 - the second week
    Lesson #4 - the third week
    Lesson #5 - the fourth week

    A large part of the responsibility of a Station Manager is the training and development of the station people. It is the responsibility of the Station Manager to see that the above schedule is rigidly adhered to.

15. Maintain employment record for each service station salesman so as to recommend salary increases at specified time, or effect termination, if employee has not demonstrated proper interest or attitude, or is lacking in ability.

16. Propose to Station Supervisor promotional or business expansion program.

00063

1 - 1. The Service Station Manager Will: (Cont'd)

17. Supervise inventory and order merchandise regularly in manner prescribed.

18. Analyze turnover so as to recommend changes in minimum and maximum stocks of various types and sizes of merchandise.

19. Maintain a constant high standard of personal and uniform appearanance among all station personnel.

20. Manage and operate the station efficiently, carefully controlling all expenses, and promoting sales so that the station operates profitably.

21. Be responsible for safety training, reporting, counseling, and safe working conditions.

1 - 2. THE ASSISTANT STATION MANAGER WILL:

1. Perform all of the functions of a Service Salesman plus directing their work so that the maximum output is achieved with a minimum of manpower and expense. Salary range $7000 to $9000 per year.

2. Instruct Service Salesmen how to perform services properly and to sell effectively. Assist them in developing their knowledge and ability.

3. Act as Station Manager in his absence.

4. Make necessary sales or other reports when instructed to do so by Station Manager.

5. Make, or assist Station Manager to make physical verification inventory of one product line daily.

6. Maintain cleanliness and appearance standards at high level by supervision and by personal effort.

7. Solicit new business for the station at every opportunity.

1 - 3. THE SERVICE STATION SALES PEOPLE WILL:

1. Perform the functions of a Service Station Sales Person, waiting on and servicing customers for all products sold and services offered. Salary range--$5000 to $7000 per year.

2. Learn the values, features, benefits and sales points of all merchandise and services offered for sale and develop the ability to present them in a favorable manner.

00064

1 - 3. THE SERVICE STATION SALES PEOPLE WILL: (Cont'd)

3. Study "Code Sixty-six" and conform to all its standards and procedures.

4. Protect all stocks of merchandise from weather and loss. Properly account for all merchandise sold and services rendered.

5. Perform all necessary cleaning and minor maintenance work to keep station inviting and clean.

6. Solicit new business for the station at every opportunity.

7. Complete all lessons and tests as outlined in the development progrom for service station sales employees.

1 - 4. ALL EMPLOYEES

1. Employees are to be impressed with the fact that this is a Phillips Petroleum Company place of business, and no one has the authority to place therein any facilities, equipment, or merchandise not belonging to Phillips. Therefore, all of the facilities, equipment, merchandise and money in the station belong to Phillips Petroleum Company and represents assets of the Company. No one individual or group of individuals, ever has the moral right, or is justified in turning to personal use or benefit, or otherwise misappropriating, the assets of the Company. It is the responsibility of each of us to protect, to the best of our abilities, the assets of our employer. This is one of the obligations we assume when we sell our services to an employer. If we cannot be absolutely honest in our dealings with the Company and our customers, then there should be no place in the organization for us as individuals.

2. Each employee, regardless of position is daily entrusted with Company equipment, property and products. It is the employee's duty to cause these assets to yield the greatest possible benefits to the Company. Only through designated channels, or after specific approval has been obtained may an employee dispose of Company materials or products. Negligence or carelessness in the handling of Company equipment, property or products, or the personal use or appropriation of such materials, is a direct breach of employee responsibility and evidence of inability to satisfactorily perform assigned duties.

3. The income of the Company originates in the sale of its products and services. Every employee's wages are the actual money which has been paid by people who believe that our workers can make products, and perform services good enough for them to buy, and better than those offered by our many competitors.

00065

Lesson 5: Field Marketing

MANAGEMENT PERSONNEL

Refer to Parent Organization Chart for Marketing Representative, Field Management, and Executive positions:

Marketing Representative
Field Marketing Management
- Area Manager
- District Manager
- Division Manager
- Regional Manager

Executive Positions
- Vice-President of Marketing
- Company President

SUGGESTED READING

"Parent Company Retail and Wholesale Sales Force Job Descriptions"

ACTIVITY

Use Parent Organization Chart to explore the realistic potential of the possible number of positions available in the field marketing positions of a representative company. (Estimated only.)

e.g. Marketing Representative. There would be approximately 4 for an Area Manager to oversee. There are 3 Area Managers per state. Therefore, 4 x 3 x 50 = 600 Area Marketing Representative in the U. S. for a given company.

Go through each of the other job titles on the Parent Organization chart to realize the potential for the higher level jobs. This is important so that students will comprehend the degree of potential for higher level positions.

00066

Student Study Sheet
(1 each Student)

Lesson 5: Field Marketing

PARENT COMPANY RETAIL AND WHOLESALE
SALES FORCE JOB DESCRIPTIONS

MARKETING REPRESENTATIVE

1. Must have demonstrated an ability to sell company's products and to offer business advice to station managers, dealers, and distributors

2. Personal Requirements

   a. Satisfactory completion of a designated training program to act according to company policy
   c. Neat appearance
   d. Ability to organize his own work
   e. Be a self-starter

3. Salary range--$9,000 to $15,000

4. Hours--Minimum 55 hours per week

5. Working conditions
   a. Mostly field calls with some paper work reporting activities
   b. Paid company expense account
   e. Average 2 nights per week away from home

FIELD MARKETING MANAGERIAL POSITIONS	EXECUTIVE POSITIONS
Area Manager District Manager Division Manager Regional Manager	Vice-President of Marketing Company President

1. Personal Requirements

   a. Usually a college graduate
   b. Outstanding achievement in lower level positions
   c. A good communicator--oral and written
   d. Adept in human relations

2. Salary Ranges

   a. Area Manager - $15,000-$20,000
   b. District Manager - $20,000-$25,000
   c. Division Manager - $25,000-$35,000
   d. Regional Manager - $35,000-$50,000
   e. Vice-President of Marketing - $50,000-$75,000
   f. President of Company - $200,000-$300,000

00067

Lesson 5: Field Marketing (Cont'd)

3. Hours

55 hours per week plus whatever extra is needed to complete the assignment given

4. Working Conditions

Area, District, and Division Managers travel mostly by automobile. Those which cover more than one state quite often use plane travel. Usually these people are gone from home at least two nights per week. Benefits include: 3-5 weeks vacation, company expense account, company paid life insurance, retirement programs, hospital insurance, company shares in a stock purchase plan, and some companies provide a stock option purchase plan for advanced management personnel.

ADVERTISING

ADVERTISING

Advertising as an industry has flourished from ancient times when the seller would wander through a village shouting his wares in hopes that the inhabitants of the village would buy from him. Later on, the merchant placed pictures of the goods sold over the shop's door. In our modern age, advertising has spread to other types of media--newspapers, magazines, radio, television, etc. Today, advertising is a multi-billion dollar industry which employs over 200,000 people. Advertising careers are usually put into three major division--research, planning and execution. These divisions require workers with specialized skills. Also many people with a clerical skill are needed to support the specialists.

GENERAL WORKING CONDITIONS IN THE FIELD

1. Most jobs are performed in clean, comfortable, well-lighted and well-ventilated offices.
2. Some jobs may require considerable traveling to visit clients or plan and research surveys.
3. Often a great deal of pressure and tension is required to meet deadlines.
4. Working hours are often irregular, working evenings and weekends to complete assignments.
5. There is little job security in the field as it is highly competitive and layoffs occur if a major client doesn't renew a contract or if there is an economic slump.

PERSONAL QUALIFICATIONS

1. Imaginative, quick-thinking, and creative
2. Intelligent, resourceful, and able to express himself well
3. Tactful and able to get along with all types of people
4. Emotional stability
5. An analytical mind with ability to accept criticism

EDUCATIONAL REQUIREMENTS

1. High school courses in English, writing, art and salesmanship
2. College degree preferred by most employers with emphasis in English, advertising literature, history and sociology.
3. Bachelor's degree in marketing, journalism, or business administration is considered a minimum by some employers.

ADVANCEMENT

1. Advancement from beginning positions to creative, research, or managerial work is excellent for those with drive, talent, and training.

2. Few advancements to top level jobs because of very limited number of positions available.

WAGES

1. Account executives--$15,000 to $25,000
2. Copywriters--$8,000 to $20,000
3. Art layout men and women--$5,500 to $9,000
4. Art directors--$10,000 to $20,000
5. Media buyers--$10,000 to $16,000
6. Research directors--Average of $16,000
7. Advertising Agency Directors--$18,000 to $70,000

FUTURE

1. With economic expansion and development of new products, the employment growth in this field should continue.
2. Competition will remain keen, however, and workers will need to develop skills to maintain their positions.

KINDS OF ADVERTISING OCCUPATIONS

Account Executives

Duties:
1. Direct work on advertising programs assigned to them
2. Develop over all plans for the account
3. Communicate wishes of client to agency staff and the plans of the agency to the client

Advertising Managers of Retail, Wholesale, and Manufacturing Plants

Duties:
1. Research and complete advertising campaigns
2. Determine operating and advertising budget
3. Purchase advertising time or space
4. Assign work and supervise staff members

Artists and Art Directors

Duties:
Create and design figures to illustrate advertising copy for the media

0..71

Broadcast Production Managers (Producers)

Duties:

1. Hire talent to produce advertisement
2. Provide advice on method, style, or technical procedures
3. Check finished product and submit it for approval

Copywriters

Duties:

Responsible for conceiving and composing original descriptive material explaining the merits of products or services

Direct Mail Specialists

Duties:

1. Write sales letters
2. Design printed advertising literature
3. Select mailing lists or maintain own lists
4. Decide upon where and when to send advertising materials

Layout People

Duties:

1. Conceive how an advertisement or TV commercial will appear in final form and prepare sketches of layouts to indicate this
2. Obtain knowledge of product so that visual presentation will be at its best

Print Production Managers

Duties:

1. Responsible for final copy and art work
2. Order typesettings and engravings, and order necessary materials and supplies
3. Contact media and determine how to put plan into effect

Research Directors

Duties:

1. Must be familiar with the location and characteristics of consumer markets
2. Estimate profit from sales in a given area and whether or not sales will be constant or seasonal
3. Knowledge of competitors and the market they control
4. Gather information on attitudes of consumers towards products or services, their advantages/disadvantages as compared to competing products, and how to reach the potential market

Space and Time Buyers

Duties:

1. Purchase space or time in media for public presentation
2. Recommend types of media to be used

SUGGESTED ACTIVITIES

1. Invite a person from an advertising agency into the classroom to discuss the various jobs in his/her agency, what work is contracted to other firms, and some of the problems which occur when working with a client who depends upon advertising to develop a market.

2. Have the students divide into small groups, select a product or service (real or fictional), and prepare an advertising campaign for the product or service. The advertisements should be prepared for at least four types of media: newspaper, magazines, radio, TV, billboards, handbills, posters for windows. In addition to these forms, the group could make a cover for their product--label for a can or box.

00073

BANKS AND FINANCING

BANK CLERKS

INTRODUCTION

Banks offer a variety of services to meet the needs of their customers. With so many services being offered, the jobs of people in the large banks are highly specialized. In a smaller bank, the clerk may have to do many of these specialized jobs.

Bank clerks need to be honest and will have a relatively quiet clean place to work. A great deal of paperwork is required throughout the banking organization.

Some of the duties for the various banking clerks include sorting checks and deposit slips into groups and batching them. This may include working with adding machines or cancelling machines. Also there are bookkeeping machine operators who record financial transactions to the bank's ledgers. These clerks usually also do routine typing, calculating and posting. There are also mail sorter clerks and interest clerks who keep records on interest bearing items that are due to or from a bank. Mortgage clerks type legal papers dealing with real estate upon which money has been loaned and maintain records relating to taxes and insurance on these properties.

WORKING CONDITIONS

1. Well lighted, air-conditioned, attractively decorated and very pleasant, friendly place to work.

2. Must be a person who enjoys working in one specialized area.

HOURS WORKED

40 hour work weeks are common which include a 5-day week and sometimes Saturday mornings. In larger metropolitan areas, the work weeks are comprised of 35 to 37 hours.

EARNINGS

1. Range depends on experience

2. Ranges from $87 to $150 a week.

00375

PERSONAL QUALIFICATIONS

1. High school graduation required, with courses in bookkeeping, typing and business arithmetic.

2. Usually must pass test on ability to work rapidly and accurately.

3. Must be able to communicate effectively with others.

TRAINING AND PROMOTIONAL OPPORTUNITIES

1. Bank will train their employees.

2. Advancement takes place rapidly and especially so for outstanding clerks.

3. Additional education while employed such as from a business college or cummunity college will help the worker advance. Many banks work co-operatively through their own training agency called the American Institute of Banking to provide in-service training for their employees.

FUTURE OUTLOOK

Employment of bank clerks is expected to increase rapidly through the 1980's. Replacement of workers is relatively high in banks since they employ so many women workers. Occupations related to electronic data processing will have the most rapid growth.

ACTIVITIES

Assume a role (for example, a mortgage clerk)

Do the transactions for each of the items below.

1. Dealing with real estate taxes

2. Mortgage interest

3. Insurance payment

Assume the role of Bookkeeper Machine Operator

Take a ledger card and see the effect of checks, deposits and service charge on an individual account.

00076

BANK TELLER

JOB DESCRIPTION

Bank tellers do many things. Their job is mostly receiving and paying out cash to customers. Customers who want to put money in the bank fill out a despoit slip like the following illustration:

FIRST NATIONAL BANK
123 Ainsworth Drive
Des Moines, Iowa 50309

No. 000 — 000 / 0000000

Date _____

Name _____

Address _____

	Dollars	cents
Currency		
Coin		
Checks		
Total		

The teller takes the deposit slip and the amount of money the customer is depositing. The amount of the deposit will be recorded in the customer's account.

The bank teller is one of the most important members of the bank staff. Nearly three-fourths of bank customers do all of their banking business through the teller.

In some very large banks, tellers may specialize as Paying Tellers, Payroll Tellers, etc.

Customers can take money out of their account. They can give the teller a withdrawal slip or a check for the amount of money they want.

Some tellers work at counter windows and some work at drive-in windows where customers conduct their business directly from their automobiles.

The teller verifies the sum of money and records the deposit or withdrawal. In the case of withdrawal, the teller also verifies the identity of the customer and checks the balance of the account. Some banks issue identification cards to customers for the faster handling of transactions.

(One per student)

○ REGULAR ○ JOINT

○ CONVENIENT ○ JOINT

SIGNATURES REQUIRED _____

_____

_____

_____

_____
AUTHORIZED SIGNATURE

_____
AUTHORIZED SIGNATURE

_____
BUSINESS BUSINESS ADDRESS

_____
RESIDENCE PHONE

_____
DATE OPENED INITIAL DEPOSIT INTRODUCED BY OPENED BY

$ _____
FIRST NATIONAL BANK, DES MOINES, IOWA
CHECKING ACCOUNT

SIGNATURE CARD

You are opening a special checking account at the First National Bank of Des Moines.

Fill out this signature card. Print clearly. Print your name and Social Security number of the first line. Sign your name on the line above the words "Authorized Signature".

Where it says "Business" write your job and the name of the place where you work. Write the address after this.

Where it says "Residence" write your home address. Then write your phone number.

Leave the last line blank. The person in charge of new accounts will fill this out.

00078

FIRST NATIONAL BANK

Des Moines, Iowa

DEPOSITED TO THE CREDIT OF

_____

_____

DATE_____ 19____

Checks and other items received for deposit to this account subject to the rules and regulations of this Bank.

NOTE ACCOUNT CODE NUMBER HERE

	DOLLARS	CENTS
CURRENCY		
COIN		
CHECKS 1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
TOTAL CHECKS		
TOTAL DEPOSIT		

DEPOSIT SLIP

Fill out the deposit slip below, using this information.

You are depositing $10.50 in cash. You are also depositing checks for these amounts:

$5.35
$20.75
$90.00

Write your account number, 123-456789, in the spaces provided.

Write the amount of cash. Then write the amount of each check.

Add up the amounts of all the checks. Write this total where it says " Total Checks."

Now add the total of the checks to the amount of cash. Write this total where it says "Total Deposit."

00079

(One per student)

DEPOSITED WITH

First National Bank

September 19 75

FOR ACCOUNT OF J. J. DOE

ADDRESS 7895 Park Plaza
Des Moines, Iowa 50322

ACC'T NO. 124-560429

		DOLLARS	CENTS
CASH		5	50
CHECKS		40	00
LIST SINGLY		75	80
BE SURE EACH ITEM IS ENDORSED			
	TOTAL	121	30

SAMPLE

SAVINGS ACCOUNT WITHDRAWAL

DATE October 15, 19 75

PAY TO
THE ORDER OF J. J. Doe $ 55.00

Fifty-five and 00/100 DOLLARS

NOTE ACCOUNT CODE NUMBER HERE

1	2	4		5	6	0	4	2	9

SAMPLE

First National Bank

SIGN HERE J. J. Doe
SIGNATURE OF ACCOUNT OWNER

Most banks provide time-saving equipment to assist the teller such as a change-dispensing machine, a teller's machine which is a specially designed adding machine. It eliminates the use of passbooks by giving a customer receipt and it also records and totals daily transactions to aid in balancing records.

When customer banking hours are over, tellers count cash on hand and balance the day's accounts. Many banks have simplified clerical duties of the teller by installing electronic data processing equipment and centralized computers which store and update customer accounts.

REQUIREMENTS

1. Should be a high school graduate with experience in clerical work.
2. College or business school training is helpful.
3. Neat and well groomed.
4. Must be able to get along well with others, be emotionally stable.
5. Honesty and integrity are essential.
6. Able to accurately handle large sums of money and valuable financial documents.
7. Able to sit or stand for long periods of time.
8. General good health -- especially hear and see well.

WORKING CONDITIONS

1. Usually a 40-hour week (may vary)
2. Usually well-lighted, air-conditioned, attractively decorated, and pleasant places to work.
3. At times, may work under pressure
4. Not much physical effort required.

WAGES AND BENEFITS

1. Beginner salary - $75 to $85 per week.
2. Experienced - $175 to $250 a week.
3. Extra benefits include paid holidays and vacations, sick leave allowances, various forms of insurance, and retirement pensions.

00081

FUTURE OUTLOOK

1. Opportunities in cities and towns of all sizes.
2. Openings occur due to turnover.
3. At present, available mostly to women.
4. One may advance to an officer.
5. Related occupations are: Bank Clerk, Bookkeeper, Cashier and Accountant.

QUESTIONS

1. List several tasks performed by a bank teller.
2. What high school courses would be helpful to a bank teller?
3. Name occupations related to that of a bank teller.
4. What are some advantages and disadvantages to the work of a bank teller?
5. Does a person have a good future in this work?
6. Is this kind of job attractive to you? Why or why not?

ACTIVITIES

1. Write a check you would give to a bank teller if you wished to withdraw money from your checking account.
2. Fill out a check and a deposit slip you would give a bank teller if you were depositing money in your checking account.
3. Fill out a withdrawal slip you would present a bank teller if you were withdrawing money from your savings account in a bank.

RESOURCES

1. State of Iowa, Department of Public Instruction, Career Information System, Grimes State Office Building, Des Moines, Iowa 50319
2. Careers, Inc., Largo, Florida 33540
3. Exploring Careers, Data Processing, Southwestern Publishing, 355 Conde Street, West Chicago, Illinois 60185

00082

BANK LOAN OFFICER

INTRODUCTION

The loan officer makes decisions regarding issuance of loans within the framework of policy set by the board of directors and existing laws and regulations. The officer must have a broad knowledge of business activities to relate to the operation of his department.

WORK PERFORMED

1. Evaluate the credit and collateral of individuals and business applying for a loan
2. Need to know business operations and be able to analyze financial statements
3. May take applications and process installments for commercial, real estate or agricultural loans

WORKING CONDITIONS

1. Usually works in pleasant surroundings
2. Much time spent working directly with people

HOURS WORKED

1. Generally works a 35-40 hour week
2. May work extra hours during peak load periods

WAGES AND BENEFITS

1. Bank officers, depending upon their responsibilities, earn from about $10,000 to $30,000
2. Benefits may be provided, as: pensions, hospitalization and medical insurance, vacations, paid holidays, life and accident insurance, bonuses, sick leave, profit sharing plans, etc.

PERSONAL REQUIREMENTS

1. Accuracy, intelligence, good judgement, willingness to work, confidence, ability to get along with others and personal neatness are some characteristics that banks prefer in their employees.

2. Honesty and discretion are very important qualifications since bank employees handle large sums of cash, securities, and confidential records.

TRAINING REQUIREMENTS

1. Basic requirement for many banking positions is high school graduation
2. Bank officers are generally expected to possess a college degree in business administration with a major in banking

PROMOTIONAL OPPORTUNITIES

1. Good promotional opportunities for employees who possess the required character traits
2. Banks often fill vacancies from own staff members

FUTURE

1. Good opportunity for both men and women
2. Growth through opening of branch banks and rapid industrial expansion provides additional jobs

QUESTIONS FOR DISCUSSION

1. How does the loan officer decide whether or not to grant a loan?
2. What responsibilities are required of the loan officer?

SUGGESTED STUDENT ACTIVITIES

1. Visit the loan department of a bank. Request them to explain what a credit rating is, what are some of the guidelines used to decide whether or not a loan applicant gets a loan, and how can a person improve a credit rating which has been damaged.
2. Invite a speaker in to explain the legal rights and responsibilities of both the lender and the borrower.

00084

BANK MANAGER (BRANCH)

JOB DESCRIPTION

Directs the activities of a branch bank following policies established by the main bank and the Board of Directors. Also there may be some state rules and regulations.

The manager is responsible for the complete operation of the bank and therefore has a variety of duties:

1. Evaluate all business activities of the bank
2. Appraise the character of a prospective borrower
3. See that records are properly kept for <u>all</u> banking services
4. Deposits and loans
5. Checking accounts
6. Safety deposit boxes
7. Travelers' checks
8. Special savings plans
9. Cashier's checks
10. Letters of credit

REQUIREMENTS

Educational - A college degree in business administration. A major in banking would be excellent. Sometimes employees with outstanding ability who have only high school education are considered for officers.

Personal - Honesty and discretion are very important personal qualifications since bank employees handle large sums of cash and/or securities and records containing confidential information about individuals and business concerns. Other personal qualities include mental alertness, leadership ability, accuracy, dependability, neatness, good manners, ability of expression (oral and written). Equally important is the ability to get along well with people and make a favorable impression upon groups as well as individuals. Should also be considerate, patient, understanding and able to inspire confidence.

WORKING CONDITIONS

Indoors, clean, comfortable, well-lighted and air-conditioned buildings. The work requires very little physical effort and most time is spent at a desk.

WAGES AND BENEFITS

$12,000 to over $20,000 annually. Usually work from 35 to 40 hours a week. Some evening and Saturday work may be necessary.

FUTURE OUTLOOK

New banks and bank branches (offices) have been created in many areas. Best employment opportunities will be for those with college training.

00086

INVESTING IN STOCKS AND BONDS

INTRODUCTION

Investing in stocks and bonds is not difficult. You do not have to be rich to buy securities.

Before investing, ask yourself these three basic questions:

1. Can I cover living expenses comfortably--food, clothing, shelter?
2. Do I have adequate insurance to protect my family?
3. Do I have enough ready cash to meet any emergency that may arise?

If you can answer yes to these three questions, then you should think properly about investing surplus finds.

In analyzing your financial situation, you should take pen and paper and list in two parallel columns, what your regular income and expenses are now and what you expect them to be five years from now. Be sure to include all your regular living expenses--food, clothing, housing and household operation, automobile expenses, recreation, taxes--as well as savings and insurance.

From this projected study, you will have an idea of where you will stand financially in the future.

COMMON STOCK

People invest to make money.

If you had put $500 into a savings account 24 years ago, collecting 3% interest compounded quarterly, your balance would now be about $1,000. Your $1,000 would now buy even less than your $500 would have bought 24 years ago. You could have done better had you invested in good common stock. Of course, you could buy and sell at the wrong time and not do as well, but a good common stock investment would have realized much more for you.

Major Investment Objectives

1. Liberal dividend income will be the primary aim for those investors who have retired.
2. Steady growth of capital will be the primary aim for those investors interested in long term investment.
3. Quick growth of capital will be the primary aim of those investors who can afford to speculate or gamble for quick profits or possible losses.

00087

There is no such thing as the all-purpose stock--one that's completely safe, sure to pay a handsome return and guaranteed to go nowehere but up. It does not exist. You have to sow in order to reap, but deciding what seeds to plant is the step that really counts.

As a common stockholder, you are part owner of a company and have several privileges. Your share of profits, in proportion to your holdings, is dividends declared by the directors. You may vote for the directors who appoint the officers who manage the affairs of the company. The value of a share of common stock can increase indefinitely as a company thrives, and so can dividend payments, which are limited by company's earnings and directors' decisions. Common stock prices are likely to fluctuate more rapidly and frequently than prices of other securities.

What Are Stocks Worth?

The price of a stock, like the price of food or clothing, depends on how much other buyers are willing to pay for it and how cheeply those who own it are willing to sell it.

Where To Find Information About Stocks

1. Read the financial pages of your newspaper.
2. Read the leading newspaper of the financial world, The Wall Street Journal.
3. Study stock-market barometers such as the Dow-Jones Average, and the Standard & Poor's 500-Stock Index.
4. Magazines carrying news of interest to investors are Barron's Commercial and Financial Chronicle, S & P Outlook, Forbes, Money and Fortune, Business Week and Nations Business.
5. Copies of the foregoing listed publications are available by subscription and also in the City Library.

Opening a Brokerage Account

The procedure is very much like opening a charge account at a department store. You provide such routine information as name, address, occupation, Social Security number, citizenship, and age, plus a bank or other satisfactory reference. That's about all there is to it. Once your account is opened, you can buy and sell securities merely by telephoning your order to your broker, making settlement within the five business days specified by rules of the financial community.

00088

When To Invest

There is never a time when every stock in the market is either good or bad to buy.

Stock prices change as opinions change. Opinions may be influenced by general conditions or world affairs or hope of change in the company's earnings, or for no discernible reason.

When To Sell

There are several reasons for selling stocks. Obviously, one is because you have to--because you need money. And if you have to sell when the price of your stock is down, you may be forced to take a loss. That is why one is urged to invest only if you have surplus cash.

Another reason for selling is to take a profit when you think a stock has reached its limit or when you could earn more investing elsewhere.

Never stay with a bad stock for too long. It is better to take a small loss and make a change to something better.

Don't be panicked into selling without good reason. If you have invested with care and for the long term, you should not let every change in the price of your stocks be a signal for gaiety or gloom. Keep your perspective, and remember that it is the nature of the market to fluctuate. It's the gain--or the loss--over the long haul that counts.

Lending Your Money--Bonds

When you buy stocks, you are buying a share of ownership in the corporation--you own a part of the business. The corporation is under no obligation to pay back the money you invested in the stock and the only way you can recover the money you have paid is to sell the stock to someone else. Bonds, on the other hand are like promissory notes--you merely loan your money to the company or governmental agency with the understanding that the money will be repaid to you at the end of a stated period of time. During this period of time, interest will be paid you at regular intervals and if you wish, you may sell the bond and recover your investment before the bond's due date. One difference between bonds and ordinary promissory notes is that bonds generally run for relatively long periods of time--10 years, 99 years, etc. Another difference is that promissory notes are usually printed forms that have the amount, name of payee, date, period of time, etc. filled in either by hand or by typewriter while bonds are usually completely printed in a more elaborate style so as to look much more impressive and valuable. Even the signatures on a bond may be printed instead of written by hand.

Bonds may be classified as registered and coupon. With registered bonds, the name of the owner is registered with the issuer and the owner automatically receives a check when the interest is due. When a registered bond is lost or destroyed, it can be replaced so that the owners do not lose their investment. Coupon bonds, sometimes called bearer bonds, are not registered and whoever is in possession of them is presumably the owner. When a coupon bond is lost or destroyed, the owners lose the same as if they lost a $5 bill. When interest is due on a coupon (Bearer) bond, the owners clip a coupon from the bond and collect interest by taking or sending the coupon to the issuer's pay agent or to their bank.

Bonds also may be classified as mortgage and debenture bonds. Mortgage bonds pledge certain described property such as real estate and/or heavy equipment which may be sold and the proceeds used to pay off the bond and/or interest in case the issuer fails to live up to the terms stated in the bond. Debenture bonds are secured only by the issuer's good reputation. U. S. Savings Bonds are of this type.

Bonds are usually issued in $1,000 units, U. S. Savings Bonds being a notable exception. Since bonds are usually considered one of the safer kinds of investment, the interest rate is usually low. If a bond bears 5% interest when the going interest rate is 8%, the bond will be sold at a discount so that the effective yield will be 8%. On the contrary, if the bond carries a higher rate of interest than what is common in the market, the bond will be sold at a primium so as to yield the market rate. (Problems can be set up for the students to figure market prices of bonds bearing different interest rates and with varying market interest rates.)

CONCLUSION

No advice could possibly be complete or conclusive. Investing is not an abstract idea but something that you may do with any surplus finds you may have available.

Whenever you are ready to invest see a brokerage firm. Then them about your situation. They will respect your confidence. And the more you tell them, the more helpful they will be in supplying you with an information you need and in assisting you in working out an investment program to suit your particular objectives and the sum of money you have.

ACCOUNT EXECUTIVE, STOCKS AND BONDS

JOB TITLE - Account Executive

JOB DESCRIPTION

WORK PERFORMED

1. Initiates buying or selling transactions
2. Notifies clients of completed transactions
3. Explains to new investory the meaning of stock market terms and trading practices
4. Gives suggestions and advice on the purchase of securities or sale of that particular security
5. Keeps abreast of broad overall trends as well as specific trends of certain companies so that he can advise his clients in the most advantageous way
6. Specializes in handling certain kinds of securities

WORKING CONDITIONS

1. Works in a well-lighted, air conditioned, excellently decorated office
2. Will have many direct contacts with people
3. Must be very familiar with figures and be willing to learn a great deal of specialized vocabulary

HOURS WORKED

1. Normally works a five day 40 hour week but must be willing to put forth extra time and effort as necessary

WAGES

1. Average $21,000 a year (1972 figures)
2. Some earn more than $30,000 per year with an unlimited ceiling when commission is considered
3. Trainees earn $500 to $700 per month while on their training program. When licensed, their earnings depend on a commission and a base salary.

PERSONAL REQUIREMENTS

1. Well groomed
2. Able to motivate people
3. Ambitious
4. Ability to work independently
5. Successful sales or managerial experience helpful

00091

TRAINING REQUIREMENTS

Course in Business Administration, Economics and Finance are helpful.
Must pass a state licensing examination.
Most employees provide training to meet requirements for registration.

PROMOTIONAL OPPORTUNITIES

1. The principal form of advancement for securities sales workers is an increase in the number and the size of the accounts they handle.

2. Some advance to positions as branch office managers and some become partners in the firm.

FUTURE

The number of security sales workers is expected to grow moderately through the mid 1980's.

00092

ACTIVITIES

1. Take a class tour to Merrill Lynch, Pierce, Fenner and Smith, Inc. Classes will need to be extremely well informed on stock market vocabulary and all parts of the stock industry. Constantine G. Nicholson is an excellent resource person who will give good tours which are pretty much on the students' level. Groups of students should be limited to not more than fifteen. The tour will take approximately one hour.

2. Get a group of brochures of individual companies and have students study the company and its short term and long term outlook. Have the students informed about their companies before going on to Activity 3.

3. After the students have learned some things about different companies and are making a somewhat informed decision on what stocks they are interested in, give individual students a hypothetical $1,000. Allow the students, individually, to make a complete portfolio of stocks out of their $1,000. The students can either buy all of one stock or vary their investment as much as they want. This should be done very near to the beginning of the year. Then every two weeks, perhaps on a Friday, take 10 minutes or so and review the prices of the stocks and see the progress or loss that the individual stocks have made. It is very important to do this over a long period of time such as the full 9 months of the schools year. In this way, the students will get a more realistic picture of what the stock market does. It is as realistic a picture of the stock market as can be given the student. If it is done over a short two or four week period, little dips in the economy or spurts in the economy or changes in interest rates or other short term factors may give the student a distorted view of investments.

   To promote interest in this area, have not only individual competition among people within a class, but then combine complete portfolios of each class and have classes compete against each other for total net profit or loss.

4. When making the selection of stocks, go to Merrill Lynch, Pierce, Fenner and Smith, Inc. and get the sheet of their own market selections. Study the difference between investment grade stocks, good quality stocks and speculative stocks. Then make a few hypothetical selections in each area and also look at each of these stocks when you review the portfolios of the students during the year.

SUGGESTED VOCABULARY

Assets	Everything a person or company owns (cash, investments, building and machinery) and money due it.
Bear	Someone who believes the market will decline.
Bear Market	A declining market.
Big Board	A popular term for the New York Stock Exchange, Inc.
Broker	An agent who handles the public's orders to buy and sell securities, commodities, or other property. For this service, a commission is charged.
Bull	One who believes the market will rise.
Bull Market	An advancing market.
Common Stock	Securities which represent an ownership interest in a corporation and has no preference over other shares in payment of dividends.
Liabilities	All the claims against a corporation. Liabilities include accounts and wages and salaries payable.
Net Change	Change in the price of a security from closing price on the following day on which the stock is traded.
Par	Face value of the stock when stock was issued.
Preferred Stock	A class of stock with a claim on the company's earnings before payment may be made on the common stock. Preferred stock has a preference in the payment of dividends.

INSURANCE AGENT

JOB DESCRIPTION

The Life Insurance Agent is a person who sells life insurance, services policies, and provides continuing insurance advice for policyowners. The agent's prime responsibility is to sell life insurance. Sales are made to individuals or to groups, such as factory employees, office workers, members of special clubs, etc. Agents work from their homes or from agency offices and by use of the telephone, mail or personal contacts, develop and maintain an active prospect list. They add to this list through participation in community organizations, clubs, fraternal orders, etc.

The agent makes appointments to talk to these individuals or groups and suggests a plan and must be able to explain in simple language the various policies, costs and benefits. If a prospect decides to buy, the agent assists in filling out the application, and arranges for physical exam, if required.

Agents sell life insurance, health, accident, and property insurance. They must be accurate with figures, keep records, interpret rates, etc.

This career requires endless study and reading because laws and policies are constantly changing.

WORKING CONDITIONS

1. Agents usually work in clean, comfortable surroundings -- well lighted, air conditioned.
2. Agents are not usually under direct supervision and have considerable freedom in planning day-to-day work. Sometimes they are required to make late evening calls.
3. Lots of travel throughout the area in all kinds of weather.
4. May be subjected to all kinds of people, from the most kind to very rude and irritable ones.
5. Active in civic, social or fraternal activities to keep in contact with potential clients.
6. This can be a full-time or a part-time job.

REQUIREMENTS

1. Most insurance companies seek college graduates who have degrees in liberal arts or business administration. A high school graduate may be chosen after a certain amount of on-the-job training.

2. Be interested in people and able to deal with all types of personalities.
3. Be able to work without supervision--a good organizer and be able to reach new prospects.
4. Have good command of oral and written English.
5. Be accurate with simple mathematical computations.
6. Have a pleasant personality, neat appearance, tact, poise, and integrity.
7. Most states require agents to pass examinations to obtain licenses.

WAGES AND BENEFITS

1. Many companies supplement on-the-job training with courses and instruction at home office schools or local colleges.
2. Some companies offer salary increases as incentives to attend these courses.
3. A forty-hour week--although many agents work longer.
4. Receive a base salary and commission on premiums paid by policyholders.
5. Income increases as clients continue to pay premiums and new clients are sold policies.
6. Average starting salary - $700 per month; ranging from $500 to $1400 per month.

EMPLOYMENT OUTLOOK

1. All phases of insurance are expected to expand.
2. A high turnover rate among beginning insurance agents.
3. Some start their own agency.
4. About 15,000 job openings per year should occur because of retirement, turnover, and the increasing need for insurance agents.
5. Some agents become managers of offices at the regional district, or national level.

QUESTIONS

1. Tell briefly what an insurance agent does. How are contacts made? To whom are sales made?
2. What are the many kinds of insurance sold?
3. What are some major differences in the working conditions of an agent to most other types of jobs related to an insurance agency?
4. Why is it necessary for an agent to have a good command of oral and written English?
5. Do you think you would be interested in the career? Why or why not?

00096

ACTIVITIES

1. List the advantages and disadvantages of setting up one's own agency.
2. Study a particular insurance policy and then try to sell this to another member of the class.
3. Interview your parents, a business executive, and a housewife and discover what kind of insurance they carry. Explain why there is a difference in the kinds and amounts of insurance carried by different individuals.
4. Interview an insurance agent. Determine the name of the company he represents. What have been some of his most interesting experiences?

RESOURCES

1. Occupational Outlook Handbook, 1974-75 Edition, U. S. Department of Labor, Bureau of Labor Statistics
2. Careers, Inc., Largo, Florida 33540 -- Career Summary S-199, and Insurance Agent B-35
3. State of Iowa, Department of Public Instruction, Career Information Systems of Iowa, Grimes State Office Building, Des Moines, Iowa 50319

00097

INSURANCE ADJUSTER

INTRODUCTION

Insurance Adjusters are often called Field Claim Representatives. They are responsible for settling insurance claims to the satisfaction of both the insurance company they represent as well as the insured customers. Some adjusters handle all types of claims concerning damage to or loss of property. Other adjusters specialize in settling claims on homes or busines buildings or automobiles or accident or health claims.

DUTIES

1. Determine policy coverage, investigate the amount of damages, determine the extent of liability of the parties involved, negotiate settlements, and satisfactorily settle the claims. Adjusters use reports, physical evidence, and testimony of witnesses in investigating claims.

2. Prepare and submit reports of findings and the action taken on each claim.

3. Cooperate with attorneys in preparing claims for legal proceedings, and inform supervisors of developments.

4. Maintain good relations with the general public, including policy holders, claimants, the insurance agency staff, physicians, hospitals, attorneys, law enforcement agencies, and other insurance companies.

5. Assist in training other claims personnel.

6. Keep abreast of new methods, procedures, and practices in relation to claims adjustment.

WORKING CONDITIONS

Some of the work day is spent in a clean, air-conditioned office, but much of the work day is spent with working with claimants wherever the loss may have taken place. When one is inspecting a claim and gathering information about that claim, a great deal of walking, standing and traveling may be required. While inspecting the claims, one meets all kinds of people. These people of course, vary in their type of personalities, going from the very demanding and hard to satisfy to the person who is very cooperative and willing to work well with the adjuster.

00099

PERSONAL QUALIFICATIONS

An absolute in qualifications is that adjusters be able to work well and be courteous to all kinds of people. They should be able to express themselves well orally and in writing. They should be observant, attentive to details, and have an understanding of human nature. Other qualifications include having a good memory, a great deal of patience, honesty and perseverence. Common sense, initiative and resourcefulness are other important personal qualifications. Finally, sound judgment is also extremely important for the insurance adjuster.

EDUCATION AND TRAINING

High school education would be required with preferably subjects in the area of typing, business law and business arithmetic. Courses in public speaking would be very beneficial. Also required are at least two years of college. A trend has been seen as of late where an increasing number of companies are requiring a bachelor's degree in liberal arts, accounting, business administration or law.

Beginners usually receive some on-the-job training. This is usually given through home study or evening courses. Trainees start by working on small claims and then work their way up the ladder getting increasingly difficult assignments.

EARNINGS AND HOURS

Adjusters usually have a beginning salary of around $7,500 per year, but after they acquire some experience, their earnings usually jump to somewhere between $10,000 and $12,000 per year. Some of the highly experienced adjusters have a salary of $16,000 and more a year.

Benefits that employees usually receive include paid vacations, sick leave allowances, medical insurance, retirement plans and the use of a company automobile.

Hours worked by adjusters are very irregular and depend upon the claims assigned to them. At busier times, they may need to work evenings and even weekends and holidays to obtain all of the necessary information on some claims.

OUTLOOK

Employment outlook appears to be fairly favorable through the rest of the 70's. However, after that time, chiefly due to new processing methods and due to no-fault insurance, employment competition may become fairly keen.

ACTIVITIES

Role Play: Pick out about five members of the class. Have two people act as the insurance adjusters. Have another person act as the owner of the damaged insured item (typewriter, for example) and then have a couple of people as witnesses as to original cost or wear of the machine before the damage took place. Act out the entire adjusting process and see whether the client and the company can come up with a settlement through the adjuster. If a settlement cannot be made privately, have the rest of the class act as members of a jury and ballot to see what the court settlement will be.

00100

REAL ESTATE AGENT

JOB DESCRIPTION

An agent works under the supervision of real estate brokers in selling, renting, leasing, managing properties (homes, farm, offices, apartments, retail stores, etc.) or specializes in one category.

An important part of handling real estate is locating prospective clients. The agent generally keeps a file on each piece of property he is responsible for regarding its description, rental fee, price, number of showings, names, of interested clients, and other facts. In selling, renting, or leasing properties agents talk to interested clients and often accompany them to the properties to point out advantages and features. They must be able to answer questions about water supply, zoning, taxes, construction, market values of surrounding properties. Agents must have a knowledge of schools, churches, stores, public transportation and other community activities.

REQUIREMENTS

Educational - No specific educational requirements, however, all states require a state license (pass a written test). College courses in real estate, law, salesmanship, business methods, finance, economics are recommended to give a complete background in this highly competitive field.

Personal - Pleasant personality, ability to get along well with people, honesty, and a neat appearance are important. Agents need tact, enthusiasm, good memory for names and faces and business details such as prices and local regulations.

WORKING CONDITIONS

Brokers provide office space, but agents generally furnish their own cars (at agents' expense). Hours of work are irregular. Agents often work in the evening and during weekends to suit the convenience of customers.

WAGES AND BENEFITS

Most real estate agents are paid a commission on all transactions they complete. However, some receive a salary plus a commission. Commissions are usually 5 to 6% of the selling price of homes and up to 10% on land and other transactions. Full time agents may earn between $10,000 and $18,000 per year with many earning more.

Some firms, especially the large ones, furnish life, health, and accident insurance. The agent has very little supervision and also there is often free time during the day.

FUTURE OUTLOOK

The demand for real estate agents is expected to be good. Competition will be keen. Some growth areas, such as Florida, California, Arizona, and Colorado may provide more than average employment possibilities while other areas will probably have fewer.

ACTIVITIES

1. Visit some houses that are for sale or rent in the area if possible. Have the students write up details as though they were the agent giving advantages, features, availability to stores, schools, etc.

   Then have students work in groups (depending on size of class and time available) and have "sellers" and "buyers".

2. Visit the houses that are built by the high school students.

3. Have a real estate agent visit to talk of the different aspects of his job.

SUGGESTIONS FOR UNITS

ON

INDIVIDUALIZED INSTRUCTION

SUGGESTIONS FOR UNITS ON INDIVIDUALIZED INSTRUCTION

By the end of the school year, students and teacher are getting a little tired. It might be time for a change. The entire class has studied by now several careers which should have acquainted each student with many phases of the marketing and distribution field. Why not at this point let each student branch out into the field that he or she is interested in.

The "Business Careers Kit" from Largo, Florida has wide variety of careers to choose from. The material is written in a clear concise way which is interesting to the students. Allow each of the students to pick their own career and present a short oral report about it. It is surprising how much more interesting the material becomes when one of the class's peers is presenting it. Also, if the students are allowed to choose a career that they are specifically interested in, they will dig into the material because they like it. Students would present the material in an impressive way because they want to show their classmates why they chose this profession.

Also, if an instructor is inclined to lean toward extra credit, this is excellent material because the students are looking into something they are interested in. Oral or written short reports are good for extra credit and very beneficial to the students.

00104

APPENDIX

00105

XI. SUGGESTED EQUIPMENT AND MATERIALS

It is recommended that the following equipment and materials be purchased so that the teacher will have at his immediate disposal all pertinent items relating to the work. Quotas and costs are indicated per school.

Item	Estimated Cost
1. Tape player, cassette (1 each school)	$ 40.00
2. Slide projector, carousel (1 each school)	100.00
3. Projection stand	20.00
4. Storage cabinet with adjustable shelves, door locks, approximately 70-78" high, 36" wide, 18" deep	65.00
5. Funds for chartering a city bus for 3 field trips for each class. "City bus" is suggested since it is understood that school buses are too tightly scheduled already.	?????
6. Kit (Slides, carousels, and pre-recorded tape) "World of Marketing and Distribution" (1 each school)	90.00
Order from: Career World 1560 Vesta Drive Harrisburg, Pa. 17112	
7. Set of 18 wall charts, 11" x 14" posters "Opportunities in Retailing" (1 set each school)	3.50
Order from: J. Weston Walch Portland, Maine 04104	

00106

8. "Occupational Outlook Handbook" $218.75
(1 ea Student--35 @ $6.25 each)
Order from: Superintendent of Documents
U.S. Government Printing Office
Washington, D. C. 20402

9. a. Career Briefs-Summaries-Job Guides as indicated on attached order blank (10 copies of each marked title for each school) 85.00

b. Business Careers Kit (1 per school) 37.50

Order from: Careers, Inc.
P. O. Box 135
Largo, Florida 33540

10. a. Occupational Brief 12.25
"Automative Mechanics" D.O.T. 620
1 ea Student--35 @ 35¢ each)

b. Occupational Brief
"Driveway Salesperson" D.O.T. 915.867 12.25
(1 ea Student--35 @ 35¢ each)

c. Occupational Brief 12.25
"Department Store Occupations"
(1 ea Student--35 @ 35¢ each)

Order from: Chronicle Guidance Publications, Inc.
Moravia, New York 13118

11. a. "Merchandising as a Career" 12.25
(1 ea Student--35 @ 35¢ each)

b. "Careers for Retail Merchandise Buyer" 10.00
(10 each school @ $1.00 each)

c. "Careers in Fashion Designing" 5.00
(5 each school @ $1.00 each)

d. "Publicity Work as a Career" 5.00
(5 each school @ $1.00 each)

e. "Retail Selling" 20.00
(20 each school @ $1.00 each)

Order from: Institute of Research
537 S. Dearborn Street
Chicago, Illinois 60605

00107

12. a. " Retail Sales People" $ 7.00
(20 each school @ 35¢ each)

b. "Fashion Designer" 3.50
(10 each school @ 35¢ each)

c. "Credit Workers" 3.50
(10 each school @ 35¢ each)

d. "Credit Collectors" 3.50
(10 each school @ 35¢ each)

Order from: Science Research Associates
259 E. Eril Street
Chicago, Illinois 60611

13. "Fashion Disigners" 2.00
(10 each school @ 20¢ each)

Order from: Ontario College of Education
University of Ontario
371 Bloor St. W.
Toronto 5, Ontario, Canada

14. "Careers in Collection" 1.50
(10 each school @ 15¢ each)

Order from: American Collectors Association, Inc.
5011 Ewing Avenue South
Minneapolis, Minnesota

The following listed materials may be obtained free of charge:

15. a. "Should You Go Into Public Relations" (Pamphlet)
(35 each school, free)

b. "Should You Be A Salesperson"
(35 each school, free)

Order from: New York Life Insurance Co.
Career Information Service
Box 51
Madison Square Station
New York, New York 10010

00108

16. "Opportunities in Sales and Merchandising" (Film)
Catalog No. 20988, Area XI Media Center, free

17. "Career in Direct Selling" (Pamphlet)
(35 each school, free)

Order from: Direct Selling Companies
165 Center Street
Winona, Minnesota

00109

PAGES 109 THROUGH 112 CONSISTING OF A PUBLICATIONS LIST FROM CAREERS, INC. WAS NOT REPRODUCIBLE AND WAS REMOVED FROM THIS DOCUMENT PRIOR TO ITS BEING SUBMITTED TO THE ERIC DOCUMENT REPRODUCTION SERVICE.

OE 009 610

ACCESSION NUMBER: VT103471

PUBLICATION DATE: 75

TITLE: COMMUNICATION AND MEDIA. JUNIOR HIGH CAREER EDUCATION HANDBOOK.

DESCRIPTOR: *CAREER EDUCATION; *JUNIOR HIGH SCHOOLS; SECONDARY EDUCATION; *COMMUNICATIONS; *MASS MEDIA; *CURRICULUM GUIDES; *LEARNING ACTIVITIES

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 224P.; RELATED DOCUMENTS VT 103 467 THROUGH VT 103 470 AND VT 103 552 AND VT 103 575 IN THIS ISSUE.

ABSTRACT: DEVELOPED BY A COMPREHENSIVE CAREER EDUCATION PROJECT IN THE DES MOINES INDEPENDENT SCHOOL DISTRICT, THIS HANDBOOK FOR THE JUNIOR HIGH LEVEL PROVIDES ACTIVITIES FOR A STUDY OF CAREERS IN COMMUNICATIONS AND MEDIA. THE HANDBOOK SUGGESTS OBJECTIVES, ACTIVITIES, AND RESOURCES TO BE ADAPTED TO SPECIFIC CLASSROOM AND STUDENT NEEDS. BRIEF SECTIONS ON THE EVOLUTION OF COMMUNICATIONS AND INTRODUCTORY CREATIVE ACTIVITIES ARE FOLLOWED BY THE MAJOR UNITS ON NEWSPAPERS, MAGAZINES, GRAPHIC PRODUCTION, RADIO, TELEVISION, AND FILM, AND RELATED COMMUNICATIONS AREAS. ALTHOUGH THE FORMAT OF THE UNITS VARIES WITH CONTENT, BEHAVIORAL OBJECTIVES AND SUGGESTED EXERCISES ARE GENERALLY INCLUDED, ACCOMPANIED BY NUMEROUS STUDENT STUDY SHEETS AND TRANSPARENCY MASTERS OF A VARIETY OF ACTIVITIES. A BIBLIOGRAPHY OF RESOURCES IS INCLUDED. (NJ)

INSTITUTION NAME: DES MOINES PUBLIC SCHOOLS, IOWA.

SPONSORING AGENCY NAME: BUREAU OF OCCUPATIONAL AND ADULT EDUCATION (DHEW/OE), WASHINGTON, D.C.

VT103 471

OCT 22 1976

JUNIOR HIGH CAREER EDUCATION HANDBOOK FOR

COMMUNICATION & MEDIA

RECEIVED
JUN 10 1976

ION • 1973
EDITION • 1975

VT 103 471
C13010
00002

COMMUNICATIONS AND MEDIA

BOARD OF EDUCATION

Dr. George G. Caudill, President

Mr. Nolden I. Gentry
Mrs. Betty Grundberg
Dr. John E. McCaw
Dr. Ora E. Niffenegger
Mr. Merle F. Schlampp
Mrs. Jack Spevak

SUPERINTENDENT OF SCHOOLS

Dr. Dwight M. Davis

ASSISTANT SUPERINTENDENT FOR EDUCATION

Dr. Robert R. Denny

EXECUTIVE DIRECTOR, SECONDARY EDUCATION

Dr. D.M. Wetter

SUPERVISOR OF LANGUAGE ARTS

Mr. Jack W. Owens

PREFACE

Career Education is a continuing goal of the Des Moines Public Schools that will assist in making education more meaningful for our junior high students by helping them acquire the knowledge, attitudes and skills necessary for making wiser career choices and understanding their roles in society.

This Handbook was developed and revised to provide instructors with additional insight into the implementation of activities in the career cluster of Communication and Media. This Handbook merely suggests objectives, activities and resources that can be incorporated into the classroom. Instructors need to adapt the material to their specific classroom and student needs.

There is a wealth of materials and resources available in the community that instructors should become aware of and utilize to assist them in implementing Communication and Media activities.

We would like to thank the following instructors and business people for their contributions in the development and revision of the Communication and Media Handbook.

Instructors

1973

Larry Card	Career Education Coordinator	McCombs Jr. High
Chris Friesleben	English, Journalism	Franklin Jr. High
William D. Sturdevant	Commercial Art	Des Moines Tech
Bill Springer	Speech, Radio, T.V., Film	Hoover High
Pat Ramsey	English, Speech, Journalism	Wilson Jr. High
Heidi Hoschar		Mann School
Mrs. Marian Ehlers	Secondary Consultant	Des Moines Schools
Jack Owens	Supr., Language Arts Education	Des Moines Schools

1975

Dorothy Brinkman	Communications and Media	Franklin Jr. High
Larry Card	Career Education Coordinator	McCombs Jr. High
Mark Havighurst	Journalism	Callanan Jr. High
LeRoy Mitchell	Graphic Arts	Hoyt Jr. High
Pat Ramsey	English, Speech, Journalism	Wilson Jr. High
Jack Owens	Supt., Language Arts Education	Des Moines Schools

Business and Industrial Participants

1973

George F. McCormick	Dial Financial Corporation
William A. Rocap, Jr.	Meredith Printing
Lynn Gipple	Northwestern Bell Telephone Company
Allan Hoschar	Register and Tribune
Karen Powell	Northwestern Bell Telephone Company
Gus Horn	WHO Radio-TV
Dolph Pulliam	KRNT Radio-TV
Becky Morgan	KRNT Radio-TV

1975

Russ Odegaard	WHO Radio-TV

It is intended that these materials be utilized by the junior highs as they continue to implement career education. Through in-service and additional workshops these materials will be revised and updated.

D. M. Wetter
Executive Director
Secondary Education

TABLE OF CONTENTS

INTRODUCTION 1

GENERAL GOALS 2

EVOLUTION OF COMMUNICATIONS 3

INTRODUCTORY CREATIVE ACTIVITIES 5

NEWSPAPERS 12
- Introductory Statement
- Objectives
- Activities
- Equipment
- Careers

MAGAZINES 32a

GRAPHIC ARTS 33
- Introductory Statement
- Objectives
- Activities
- Equipment
- Careers

GRAPHIC PRODUCTION 44
- Introductory Statement
- Objectives
- Activities
- Equipment
- Careers

RADIO, TELEVISION AND FILM 86
- Introductory Statement
- Objectives
- Activities
- Equipment
- Careers

RELATED COMMUNICATIONS AREAS 157
- Introductory Statement
- Objectives
- Activities
- Equipment
- Careers

RESOURCES AND PRINTED MATERIALS 159

INTRODUCTION

The intent of the following material is to provide objectives to be utilized in the implementation of the Communications and Media cluster of Career Education in the junior high schools. Since the field of Communication and Media is very broad, it must be recognized that few individuals will have the background, knowledge and skills to teach everything in this package. Thus an interdisciplinary approach to teaching and planning is desirable to present a more effective program.

It was not the committee's intent to present a detailed study of skills of equipment operation, but rather to approach the communication careers on a broad concept basis.

In order for these materials and activities to be workable, it will be necessary to modify and adapt them to the particular school situation. It is the feeling of the committee that the content and material in the Communication and Media cluster is so encompassing that it would be difficult to include the material and activities within one existing junior high subject. This material is not proposed to be conclusive or a finished product. Further revision and expansion will naturally follow as the individual teacher seeks additional objectives, activities and resources.

GENERAL GOALS

1. The student will develop ability to send and receive messages more effectively through writing, illustrating, reading, speaking and listening as he explores careers in the communications.

2. The student will develop understandings of the variety of careers in the principles, practices, problems and strategies in the communication field and how they relate to one another.

3. Through a variety of activities, the student will explore a wider range of recreational activities, including reading, photography, films, television, radio and art.

4. The student will be exposed to the hardware, production, genre, message interpretation and presentation of the media as it relates to the various careers in communication.

5. The student will have the opportunity to improve his sensitivity to and interpretation of the media and the implications for himself and for society.

6. The student will have experiences which will help him assess his potential for careers within the communications cluster.

7. The student will have an opportunity to learn new skills in the areas of language arts, art, media technology, broadcasting, recording, graphic and line communication, as they pertain to careers in these fields.

THE EVOLUTION OF COMMUNICATIONS

Man has always communicated. Although the types of communicative devices have become more sophisticated throughout the years, the basic need to relate to others has been evident since the beginnings of man. Language and writing had not been developed 28,000 years ago, but through a system of grunts, screams, facial expressions and gestures, man could make his message known to others. This, then, was the first form of communication. Its obvious limitation, of course, was the inability to transmit the exact meaning of the sender's message. There was also no way for man to record information for future use.

In moving around the land, early man developed a new means of communication. Piles of rocks or cuts on trees could mark a trail to follow on the return trip. Man learned to control fire and thus sent smoke signals to communicate different messages, such as danger or the discovery of food. Primitive man also studied the star clusters and the full cycle of the moon and noticed a pattern of reoccurrence. He could keep track of time in relation to days, months and seasons by making notiches of sticks. The messages in these new forms of communication gave ideas more exact meanings.

Approximately 8,000 years ago, man discovered that seeds grow into plants and plants into food. This made it possible for him to settle in one place rather than move constantly about in search for food. Men formed communities and although they began to record experiences through pictures and carvings on pottery, it became necessary to develop some sort of language.

The success of a community is based on the ability of its members to communicate within the group. Only through the means of a spoken language could man share ideas and set up institutions necessary to his survival. Since each community developed its own language, the group members were unified and outsiders were immediately recognized as such.

Communication took its next step up with the development of writing. Although man had been drawing pictures for quite some time, these were merely to record ideas and not specific sounds. In the beginning of this form of communication, the ideas expressed, which were mainly religious in content, were recorded on hides, pottery, walls and clay tablets. Later, papyrus (reeds pressed together in thin sheets) was discovered by the Egyptians and this proved to be a better writing material.

With the onset of writing, man was able to record his history for future generations. He was also able to write down instructions for making wheels, plows and weapons, so others could benefit from and improve on such things. In the beginning, not everyone, of course, could read or write. Also, books copied by monks or scriveners (writers) were very expensive and took months to turn out. Thus, only a very few people benefited from the recordings of man's early knowledge and history.

00009

Man's limitations on his communicative abilities were eliminated by discoveries made down through the years. The Chinese developed paper, replacing expensive parchment. They also discovered wood-block printing,

which enabled man to produce one whole page at a time. This was still a very tedious process, however, since each letter had to be carved by hand. Then, around 1450, Johann Gutenberg invented the moveable type printing press, allowing man to communicate with more people than ever before in history.

In the following centuries, more discoveries increased man's communicative abilities. Samuel Morse invented the telegraph in the 19th century, sending messages through a system of dots and dashes. In 1826, Alexander Graham Bell invented the telephone, thus transmitting the human voice over great distances. Shortly after World War I, the radio made its debut, permitting one man to speak to many people at the same time. Thomas Edison invented motion pictures and the TV, demonstrated by a man named Baud, was introduced in 1926. Today, computers record information at rates much faster than the human mind can work, thus eliminating those time-consuming chores.

Today, man has a rather sophisticated communications system. The visual system was the first to develop to the point where we know it today. Cheaper paper, the printing press and the discovery of minimum electrical expense through steam power, provided people with books they could well afford. Newspapers began to grow in size and scope with the inventions of Monotype and Linotype, thus setting type from a keyboard. Advertising also helped lower the prices and today nearly everyone buys a copy of a daily newspaper.

In 1839, photography was introduced as another means of visual communications. Although its use was limited to family portraits in the beginning, today pictures supply newspapers with exact recordings of events and its extended use involves posters, books, advertising, as well as providing many people with an interesting hobby.

The audio communication system began in the mid-19th century with the invention of the telegraph. Wires were strung from one side of the U.S. to the other. The telephone, though, was the major breakthrough in the audio area. Businessmen were the prime users of the telephone in the beginning, but again with the discovery of cheaper power, the telephone found its way into the majority of American homes. An underwater cable eventually linked nations together through telephone use. The phonograph machine recorded music and voices and after World War I, the broadcasting system began.

The newest area of communication is the audiovisual field, which was developed only 50 years ago. The audiovisual concept employs the universal language of sight along with sound. The first "talking" film emerged in 1929, starring Al Jolson in "The Jazz Singer". Pretty soon, a movie house was built in nearly every U.S. town. The only demand on the people was they had to gather at one place to see the movie. Television in the home brought entertainment to anyone by simply turning a dial. This media communication is probably the most powerful form ever known to man.

00010

INTRODUCTORY CREATIVE ACTIVITIES

Before the student is ready to explore the various careers included in the Communication and Media cluster, the teacher may wish to provide activities such as those described here. The purpose of these exercises is to help the student sharpen his sensory powers, expand his thinking processes to include divergent thinking and to stimulate creative imagination, all of which will prepare him for careers in communications.

I. Improving Sensory Powers - Sense: Observation

Behavioral Objective: The student will demonstrate his power of observation by recording such things as similarities, differences, emotions, gestures, colors, details and conflicts in pictures, objects or situations.

Exercise #1 Look at any available object (book, writing object, a piece of material). Concentrate on it completely. Look at its pattern, shape, color and texture, but do not touch it. Close your eyes. Can you remember what it looks like? Change the appearance of the object in some way without touching it (shade it or cover it with a see-through material.) What are the similarities and differences? What are the special identifying marks? Record your observations.

Exercise #2 Look at any picture involving people. Study it carefully and write down everything you see. Write as if you had been watching the scene and wanted to relate the circumstances to someone. The emphasis here is not <u>how</u> to write, but on <u>what</u> to write as a result of observation.

Exercise #3 This exercise can be used spontaneously to teach the student to always be observant. When someone has entered the room and then left (a messenger, fellow teacher or custodian), ask the student to write down everything he remembers about that person, such as type and colors of clothes, physical description and facial expressions. This exercise can also be used within class. What was on the bulletin board last week? What did the teacher wear yesterday?

II. Improving Sensory Powers - Sense: Touch

Behavioral Objective: The student will describe the sensations of touch by noting the texture, temperature and volume of objects.

Exercise #1 Close your eyes. Touch something - sand, clay, moss, wood. Feel the texture, the temperature and the volume. What does your object feel like? What does it remind you of? Compare several objects. Record your reactions.

Exercise #2 Put your hand into a bag of objects without looking at its contents. Take several minutes to feel the different objects, again noting the temperature, volume and texture. Record as many items as you can remember, giving detailed descriptions of how they felt.

III. Improving Sensory Powers - Sense: Smell

Behavioral Objective: The student will record descriptions of different smells as he encounters them throughout the date. (outside, kitchen, basement.)

Exercise #1 Smell the air. Find different odors in it. Record the different things you smell at different times and different places throughout the day. Choose descriptive words to record your smells (i.e. don't write: "It smells good." Write: "It smells tart, limey, rancid, fresh, etc."

Exercise #2 Record your descriptions of smells at different stages. Examples: 1. Cut into an orange in the morning. What does it smell like. Smell it again at night or the following day. How has the odor changed? 2. Record the different odors at various stages of making a cake or a dinner. 3. What does wax smell like as it's melting? As it hardens? As it burns?

IV. Improving Sensory Powers - Sense: Taste

Behavioral Objective: The student will record descriptions of various tastes of food and objects.

Exercise #1 — Taste several objects and foods - water, fruit, cinnamon, thread, stone. What do they feel like on your tongue? Does the texture affect the taste? Concentrate on the taste. Is there any relationship between smell and taste? Do any of the objects taste the same?

Exercise #2 — Taste the same food at different stages and record your description. Examples: What does a can of cool pop taste like when it's opened? What does it taste like after it sits out for awhile? What does ice cream taste like cold? warm? with cake? What does raw hamburger taste like? cooked? with a sauce of some kind?

V. Improving Sensory Powers - Sense: Hearing

Behavioral Objective: The student will record descriptions of sounds that he encounters through various experiences.

Exercise #1 — Listen to the different sounds you encounter at various times throughout the day. Describe your impressions. Shut your eyes and just listen. What do you hear? Do the sounds run together? Choose specific words to describe the different sounds.

Exercise #2 — Listen to a sequence of recorded sounds. After listening to the recording a couple of times, write a paragraph or two relating a description of events that could have happened from the beginning to the end of the recording. (Example of a possible series: closing a closet door, yawn, turning off a lightswitch, sounds of easy breathing while sleeping, creaking door, slow footsteps, heavier breathing (fright), scream, footsteps running away.

VI. Developing Divergent Thinking Processes

Behavioral Objective: The student will employ divergent thinking or write lists of items.

Exercise #1 The teacher asks the students to list in a two minute period all the ways he can think of to use a:

1. brick
2. newspaper
3. paper clip
4. other material

Exercise #2 The teacher will ask each student to list all the words he can in a two minute period that:

1. Start with s and end with t.
2. Start with c and end with n.
3. Start and end with the same letter.

Exercise #3 The teacher will ask each student to list all the:

1. colors
2. languages
3. TV shows
4. Magazines

he can think of in a short time period.

Exercise #4 The teacher will ask the student to list in a two minute period all the ways he can think of that human beings can use to communicate with each other.

Exercise #5 The teacher will ask each student to list all the tasks he can think of in a two minute period that would go into the production of:

1. a newspaper
2. a magazine
3. a radio broadcast
4. a T.V. show
5. a movie
6. a recording

VII. Brainstorming Activities

Behavioral Objective: Each student will work in a group of from five to seven members to brainstorm lists of creative items.

00014

Exercise #1 — Students will work in groups of from 5 to 7 members to orally brainstorm (that is, to generate ideas in rapid succession, building on one another's thinking, not stopping for evaluation) while one recorder jobs down all suggested possibilities for:

1. Ways man can communicate with his fellow man.
2. Ways the telephone can be improved.
3. Ways movies could be improved.
4. Ways television could be improved (and any others).

VIII. Developing a Creative Vocabulary to Improve Communication

Behavioral Objective: Each student will substitute more descriptive words for trite and worn out words in his vocabulary.

Exercise #1 — Each student will list in a specified time period all the colorful words he can think of to describe:

1. a man walking
2. a child's facial expression
3. a quiet place - a noisy one
4. the countryside
5. a meal

IX. Creating a New Method of Communication

Behavioral Objective: Each student will invent a new method of communication and demonstrate its use to the class.

Exercise #1 — Each student or group of students will design and construct a method of communication, no matter how ridiculous or strange. It can be visual, audio or both. Perhaps a fair or exhibit or film could be compiled from these inventions. Examples could range from a basic flag signal system to a fantastic machine which emits sounds to be decoded or a far-out space communications system which may be represented not actually constructed.

00015

Journalism

00016

INTRODUCTORY STATEMENT

The Story of Newspaper Production

The newspaper is one of man's most important sources of information. Through its news stories, features, and articles of opinion, the newspaper makes known to the public the important issues and events of the day. Since it first appeared in Germany in 1609, the newspaper has played a large part in man's increasing ability to communicate with others through visual messages.

There are over 25 billion copies of newspapers printed in the United States each year. While some are published daily and some weekly, all newspapers share certain things in common. Newspapers have a profit motive just as any other enterprise. They must make a profit in order to remain in business. A profit could never be made just from the 10¢ or 15¢ charged for the newspaper itself. A newspaper's income is achieved through selling space to businesses in which to advertise their products or services.

Newspapers have a format. The format states how many pages the newspaper will have, the number of columns on each page, where the advertisements fit in, the kind of news stories, features, photographs and articles of opinion to be contained in the newspaper, and how often the paper will be published.

Newspaper career opportunities are endless. This compilation of objectives, activities and resources will provide the teacher with opportunities to allow the junior high student to explore the various aspects of newspaper publication.

00017

Student Study Sheet
(One Per Student)

JOURNALISM CAREER DESCRIPTIONS

I. Reporters

a. General Assignments - Collects and analyzes facts about news worthy events by interview, investigation, or observation, and writes stories to prescribed editorial techniques and format.

b. Foreign Correspondent - Reports stories, articles and news items by mail, telephone, radio, or telegraph from locations distant from publication.

c. Feature Reporter - Writes stories of humorous, interpretative, narrative, or otherwise subjective character, usually with emphasis placed on writing style and personal point of view of the reporter.

d. Rewrite Man - Writes news copy for publication from written or telephone notes supplied by reporters.

e. News Specialist, Syndicate - Writes syndicated news articles for newspaper publication.

II. Copy and Proof Readers

a. Copy Reader - Edits and corrects newspaper or magazine copy. Writes headlines preparatory to printing.

b. Proofreader - Reads proof of type setup to detect and mark for correction of any grammatical, typographical or compositional errors.

III. Columnists and Critics

a. Columnist - Writes feature column, appearing periodically in newspaper or magazine, based on personal experience with subject matter. May specialize in areas such as sports, fashions, politics, society.

b. Editorial Writer - Writes comments on topics of current interest to stimulate or mold public opinion in accordance with viewpoints and policies of publication.

c. Critic - Writes critical reviews of literary or artistic works for newspapers or periodicals. May specialize in areas such as drama, movies or music.

IV. Specialized Personnel

a. Librarian - Keeps file of news items, microfilm and other material for use by editorial and reportorial staff.

00018

V. Editors

a. Editor, Managing, Newspaper - Negotiates with newspaper owner's representative to establish publication policies and directs editorial activities of newspaper departments.

b. Editor, Department - Coordinates activities of publication's news or feature departments and supervises reporters engaged in gathering, writing, and publishing one specific type of news.

c. Editor, Trade or Technical Publication - Selects, writes, and reviews materials for publication, plans layout and supervises editorial staff.

00019

Student Study Sheet
(One Per Student)

JOURNALISM TERMS

balance - to put equal amount of headlines, copy and illustrations in all quarters of a newspaper page.

banner - a three-column headline - the largest, boldest headline on the page. It announces the most important news in the issue.

body - the main part of a news story that follows the news lead.

by-line - a line with the writer's name below the headline of the story. This line tells the reader the name of the person who wrote the story.

caption - explanation or comment found under an illustration on a newspaper page.

circulation - distribution of copies of the newspaper to the readers.

column - a vertical line of copy on the newspaper page, or a space devoted to a particular writer in each issue of the paper, for example, a feature column.

columnist - a person who regularly writes a column usually on a particular subject such as T.V. or sports.

copy - any writing that reporters and columnists complete for the newspaper.

copyread - to check the copy for correct journalistic style and accuracy.

deadline - time when finished work must be turned in.

deck - a single line of headline, one or more columns wide.

dummy - a practice make-up page, or to work on fitting type to the page.

edit - to change copy to fit the available space to make it clearer to the reader.

editor - a person who heads a newspaper department (news, feature, sports,) and who edits and copyreads.

editor in chief - the newspaper manager with authority similar to that of the president of a company. He heads the editorial board.

editorial - copy written by an editor to express or tell newspaper staff opinion on an issue or school problem.

editorial board - a group consisting of the several newspaper editors who meet regularly to discuss news plans, newspaper opinion, and school issues and problems.

feature - copy which appears on the feature page, such as an editorial or an interview, or a column on a particular topic.

focus - to direct the reader's attention to a particular portion of the newspaper page, or a striking story that attracts the reader's eye. The focus of a news page could be the banner.

headline - a short description written in larger letters than the copy to explain the content of the story.

illustrations - pictures, cartoons, or any kind of drawing.

illustrator - a person who draws for the newspaper.

journalism - the science of managing, writing and editing a newspaper or magazine.

lead - the introduction to the body of a news story, usually the first paragraph.

make-up - the placement of copy on the page.

masthead - section giving publication information such as date, volume, names of the newspaper staff, and subscription information, located on the editorial or feature page.

nameplate - the name of the paper, who published it, and the date and volume, located on the top half of the front page.

news beat - the place or places a reporter goes regularly in search of news.

news plan - ideas for stories that will be included in the next issue.

opinion - the way one thinks about a subject.

persuade - to convince another by logic so that he may agree with you or do what you want him to do.

production - process of getting finished copy into print.

proofread - to correct errors in grammar, spelling, punctuation, capitalization, word usage, and sentence structure.

pyramid - the technique of news writing in which the most important facts are written first and the other facts follow in order of importance.

quotation - the exact words of a person, enclosed in quotation marks. An indirect quotation uses only the ideas of a person, not his exact words, and does not require quotation marks.

staff - the people who work together to put out a newspaper.

word count - the total number of words a story contains.

JOURNALISM OBJECTIVES AND ACTIVITIES

I. **Behaviorial Objective:** The student will recognize what is news and disregard what is not news for print.

Exercise #1 Bring to class three different issues of your daily newspaper. As preparation for intelligent class discussion, read thoroughly the stories on the front pages that received top display in all three issues. Make a list of the news elements that each story contains. Try to determine the possible reasons that the editors used to give these stories top display.

Exercise #2 Bring to class a recent issue of your local newspaper. Discuss the display given to the stories on the front page. Are some stories given to little display and others to much? Are there some stories on page 1 that should be on inside pages and some on inside pages that should be on page 1? Give reasons. Read several of the stories and discuss their content with the following questions. Did the reporter obtain all the important details of each story? What news elements (5 W's and 1 H) are contained in each story?

Exercise #3 Suppose that you are the news editor of your school newspaper and that you are in charge of preparing the assignment sheets for the next issue. List in the order of their importance the ten most important stories that should be covered for this issue. Be prepared to give reasons for your order.

II. Behavioral Objective: The student will determine his possible success as a reporter by analyzing himself through the use of the personal inventory.

Exercise #1 To determine the students possible success as a career reporter, he may analyze himself on the chart "Personal Inventory". Then in class discuss the reasons why each of these personal characteristics is necessary to successful reporting.

00022

Student Study Sheet
(One Per Student)

Personal Inventory

Personal Characteristics	Poor	Fair	Good	Excellent
1. Intense interest in people and in what happens to them				
2. Ability to meet people easily and to converse with them				
3. Ability to inspire confidence in others and make people feel easy in your presence				
4. Ability to speak and write good English				
5. Responsibility				
6. Punctuality				
7. Willing to respect confidences				
8. Ability to work quickly				
9. Accuracy				
10. Willingness to weigh evidence on both sides before arriving at a decision.				

00023

III. Behavioral Objective: The student will practice various methods of gathering news.

Exercise #1 The student will bring news clippings from each of the following sources and discuss how the information was gathered:

a. local news story
b. feature story
c. foreign story
d. UPI or AP story

Exercise #2 Appoint two students to conduct the following telephone interviews, one to act as the reporter and the other as the interviewer. Try to obtain two telephones to use in this assignment. After each phone interview, discuss the techniques used.

Exercise #3 Select several students to demonstrate before the class the proper and improper ways of conducting interviews. Determine the effectiveness of the interviewing done through class discussion which applies the following "Do's and Don'ts of Interviewing":

The Interview

Do:

1. set up an appointment in advance
2. dress neatly and wear a smile
3. take along a tablet or paper with something sturdy to write on
4. have an extra pen or pencil
5. be on time for the appointment
6. address adults as Mr. or Mrs. unless they have another title such as Dr.
7. have your questions well thought out ahead of time. If necessary, write them down
8. take notes. Most reporters develop their own system of note taking
9. write down the most important ideas
10. write exactly any of the speaker's words which you may wish to quote in your story
11. ask for a second appointment if necessary
12. write the copy while the interview is still fresh in your mind
13. have the person you interviewed read the finished copy if you have any doubts about its accuracy

Don't:

1. go to an interview unprepared
2. enter when the person is busy and expect to get a chance to interview him
3. be nervous, because this will be a very enjoyable visit for both of you
4. stay too long
5. ask for the spellings of words that you can find yourself in a dictionary
6. quote the person if you are not sure of his exact words

IV. Behavioral Objective: The student will write news stories.

Exercise #1 — Using the pyramid technique, the students will write a news story containing the 5 W's and 1 H.

Who?

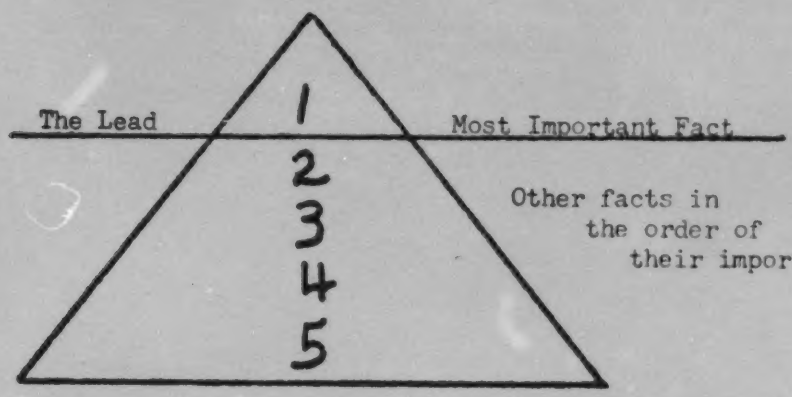
What?

Where?

When?

Why?

How?



The Rules of News Writing

1. Always write a lead to interest the reader.
2. Decide which facts are most important. Pyramid the copy with the important facts at the beginning of the story.
3. Use short sentences whenever possible. Avoid wordy sentences.
4. Use short paragraphs. Most news stories contain two or three sentences per paragraph.
5. Be sure that each paragraph has just one main topic.
6. If you quote what someone has said, do it accurately.
7. Tell things just as they happened, without expressing your own feelings.

8. Reread your story. Is it well-organized? Is it clear? Usually the story will have to be revised and rewritten.

Exercise #2 The student will test the accuracy of the above news story by answering the following questions?

1. Do I have all the facts?
2. Did I verify these facts with my source?
3. Have I checked the spelling of all names and all names identified?
4. Have I verified the dates with the calendar so that Friday is September 26, for example?
5. Is the story written in the order of decreasing importance?
6. Is the first paragraph short - 25 to 30 words?
7. If there are too many 5 W's or H's for one paragraph are they relegated to the second and even third paragraph?
8. Does the lead merge smoothly with the first paragraph of the body?
9. Do all the paragraphs follow one another in logical order, each one blending with the one preceding?
10. Are the paragraphs short?
11. Is all editorializing avoided?
12. Are there any unneccessary details?
13. Have I obtained a direct quote or two, when possible to add variety and interest to the story?
14. Is the vocabulary simple and specific?
15. Are there no misspelled words or grammatical errors?
16. Are sentences short and clear?

Exercise #3 The student should rearrange the following paragraphs so they will be in proper pyramid order:

A

In previous years girls were nominated in the home rooms. Those receiving the greatest number of votes were introduced later at an assembly, at which student speakers qualified their candidates. The following day senior girls cast their final ballot.

B

To explain the changes in the procedure for electing this year's DAR award winner, Mr. L. S. Michael, principal, will speak at an assembly for senior girls next Wednesday in social hall.

00026

C

The winner will be awarded a certificate and a pin at a chapter meeting sometime in April. She will also stand a good chance of having her name drawn as Illinois' "Good Citizen" and of receiving from the national DAR group a government bond of $100 maturity value.

D

Previous winners were Joanne Hansen, '72, and Nancy Persons, '71.

E

The following day the girls will vote for one senior girl whom they believe best exemplifies dependability, service, leadership, and patriotism. From the three girls receiving the highest number of votes, the faculty will select one to represent DHS as its DAR Good Citizen.

V. Behavioral Objective: The student will write feature stories.

Exercise #1

Write a feature story (sentences and paragraphs somewhat longer, with colorful, descriptive words) for the following sets of facts.

Freshman in your home economics classes one week before Christmas are asked what each most enjoyed cooking. Write the lead for a feature in which you intend to mention every student and her favorite dish. Feature the unusual in these opening lead paragraphs.

Note: Are there any common food items missing?

Butterscotch apple - Ruth Erfmeyer, Lucy Price
Coffee - Anna Pakoss
Candy - Chris Blake, Candy Orr, Lori Strarch
Cream puffs - Billie Booth
Baked apples - Sandy Yamer, Mary Metcalf
Lemon cream pie - Ann Taylor
Whole wheat bread - Chris Lytel
Eggs a la golden rod - Becky Shipley
Devil's food cake - Kim Kaylor, Carol Hogan, Glenda Sager
Pumpkin Pie - Janet Lynn, Mary Patterson

00027

Exercise #2 Students are to compile a list of names prominent in national and local news. The instructor is to check this list and discard any names of doubtful prominence. Then read the selected names to the class for identification. Write a feature on the results.

Characteristics of Feature Stories

1. They usually entertain more than they inform, instruct or advise although they may do all four.

2. They may be of any length, ranging all the way from rather long magazine articles to the short human interest story.

3. They are factual and require reporting, but they are related to news stories in few other ways.

4. They may or may not be timely. If they are timely and related to a current news event, however, they are likely to be more appealing to a newspaper's readers.

5. They may be written in any form and in any style. The only criteria are that the form and style be appropriate to the content and to the purpose of the story.

6. They permit the reporter to use all of his knowledge and cleverness to write a story that is original in idea and treatment.

7. They are well-organized, always written from a carefully constructed plan or outline.

8. They rarely have a summary lead. Instead they more often have novelty leads.

9. They usually are not cut in makeup. Thus the reporter may use any devices of the fiction writer that he wishes: suspense, surprise, dialogue, description, narration, climax and the like.

10. They depend upon the writer to apply his imagination to the facts.

11. They are written with friendly simplicity.

VI. Behavioral Objective: The student will write editorials.

Purposes and Types of Editorials:

1. Editorials of Interpretation

   explains the significance or meaning of a news event or a current idea, condition or situation.

2. Editorial of Criticism

   points out the good or the bad features of a problem or of some situation mentioned in the news and tells what should be done about it.

3. Editorial of Appreciation, Commendation or Tribute

   praises, commends or pays tribute to a person or an organization that has performed successfully.

4. Editorial of Entertainment

   takes for its subject a topic which readers are interested in and develops it lightly, evoking a smile, a chuckle, or a laugh, and often has a point gently and subtly suggested.

Exercise #1 — The student will select one specific limited idea to develop, one that is of interest to readers and timely. Organize the editorial into three parts, the introduction, the body and the closing. Write simply. It is recommended that the student write his first editorials on school or local issues.

Exercise #2 — The student will test the effectiveness of his editorial by asking the following questions:

00029

Student Study Sheet
(One Per Student)

Checking Your Editorial

1. Are the form and style appropriate to the content and the purpose.
2. Does it have a purpose and does it accomplish that purpose?
3. Does it make the reader think?
4. Does it reflect the writer's originality?
5. Is the writing clear, vigorous, direct and simple?
6. Is the diction exact, not ambiguous?
7. Does the editorial reflect clear, logical thinking?
8. Does it give evidence of accurate knowledge?
9. Does it sound sincere?
10. Does the opening sentence employ the principles used in any good sales letter?
11. Is the editorial brief and pointed?
12. Does the editorial make its point without preaching?

VII. The student will copyread stories from previous assignments, completing the following duties and employing standard proof marks.

Duties of a Copyreader

1. He marks copy for the printer, indicating exactly how each story is to be set in type.

2. He checks for errors in facts.

3. He reads to see whether all important information is given. If not, he sends back the story to the reporter or he himself inserts the needed facts.

4. He reads to see whether any irrelevant or improper material has been included. If so, he deletes it.

5. He checks the effectiveness of the lead.

6. He checks the organization of the body of the story. If any paragraphs needs to be rearranged, he rearranges them.

7. He checks the writing of the whole story and improves it in any way he can.

8. He corrects any errors in grammar, spelling or style.

9. He adjust stories to their prescribed length.

10. He writes headlines.

Exercise #1 — Copyread the following story, using standard copyreading symbols. When you have finished the exercises, discuss in class the reasons for each change made.

00021

Student Study Sheet
(One Per Student)

STANDARD PROOF MARKS

Punctuation

- Insert period.
- Insert comma.
- Insert semicolon.
- Insert colon.
- Insert exclamation mark.
- Insert question mark.
- Insert hyphen.
- Insert quotation marks.
- Insert one-em dash.
- Insert two-em dash.
- Insert en dash.
- Parentheses.
- Brackets.
- Insert star.
- Superior or inferior.

Spelling

- Pay no attention to.
- Query; is this right?
- Transpose letters or words.
- Take out; kill.
- Insert apostrophe.
- Spell out words rung; in display, do not set this line.
- Insert correction indicated.
- Use a ligature fi.
- Upside down; reverse.

Display

- Change to capitals.
- Change to small capitals.
- Change to lower case.
- Change to italic.
- Change to roman.
- Change to bold face.
- Wrong font.
- One underline signifies *italic*.
- Two underlines, SMALL CAPITALS.
- Three underlines, CAPITALS.
- Change to bold type.
- Change battered letter.

Spacing

- Start a paragraph here.
- No paragraph; run in.
- No paragraphs or short lines.
- Carry over to next line.
- Carry back to next line
- Something omitted; see copy.
- Space evenly.
- Close up; one word.
- Insert space here.
- Push down lead or space.
- Indent one em quad.
- Indent two em quads.
- Move to the left; lines reset.
- Move to the right.
- Move up.
- Move down.
- Line up vertically.
- Line up horizontally.
- Start a new line.

Copyreader

- Set in lower case.
- Paragraph.
- Period.
- Spell out.
- Separate.
- Transpose words.
- End of story.
- End of last story for day.
- Omit and close up.
- Spell as written.
- Add additional copy.
- Print immediately.

Showing marks used by copyreaders and proofreaders, together with their explanations, grouped for convenience in memorizing.

00032

STUDENT TEST
OF
STANDARD PROOF MARKS

Student Study Sheet
(One Per Student)

PUNCTUATION

Insert period.
Insert comma.
Insert semicolon.
Insert colon.
Insert exclamation mark.
Insert question mark.
Insert hyphen.
Insert quotation marks.
Insert one-em dash.
Insert two-em dash.
Insert en dash.
Parentheses.
Brackets.
Insert star.
Superior or inferior.

SPACING

Start a paragraph here.
No paragraph; run in.
No paragraphs or short lines.
Carry over to next line.
Carry back to next line.
Something omitted; see copy.
Space evenly.
Close up; one word.
Insert space here.
Push down lead or space.
Indent one em quad.
Indent two em quads.
Move to the left; lines reset.
Move to the right.
Move up.
Move down.
Line up vertically.
Line up horizontally.
Start a new line.

SPELLING

Pay no attention to
Query; is this right?
Transpose letters or words.
Take out; kill.
Insert apostrophe.
Spell out words run; in display, do not set this line.
Insert correction indicated.
Use ligature fi.
Upside down; reverse.

DISPLAY

Change to capitals.
Change to small capitals.
Change to lower case.
Change to italic.
Change to roman.
Change to bold face.
Wrong font.
One underline signifies italics.
Two underlines, small capitals.
Three underlines, capitals.
Change to bold type.
Change battered letter.

COPYREADER

Set in lower case.
Paragraph.
Period.
Spell out.
Separate.
Transpose words.
End of story.
End of last story for day.
Omit and close up.
Spell as written.
Add additional copy.
Print immediately.

00033

Student Study Sheet
(One Per Student)

Story for Copyreading

1 Glass, history anf fundamentals, was the subject of the
2 talk in Tuesday's assembly, given by R.A. Melville, who spoke
3 here through the courtesy of the Madison theatre, where Mr.
4 Mellville is giving a series of talks on glass and glass
5 blowing.

7 According to the speaker, United States has the largest
8 glass industry in the world, all the but the coloring ot it.
9 Mr. Melville lives in Long Island, New York, but he received
10 his training abroad.

Story 2

1 That a banquet will be held at the Y.W.C.A. on May 2
2 it was decided at a meeting of the Spanish club at the home
3 of Jane Henry, president of the club.

4 The price of the banquet will be $1.50 per plate. The
5 members of the Spanish club, their guests and the first year
6 pipils are welcome to attend this banquet.

7 A short play, Manaua de Sol, will be given as part
8 of the program. Melvin Johnston has charge of the produc-
9 of the play.

10 The meeting was opened at 8 p.m. by the president, Jan
11 Henry. t being a strictly business meeting it was adjourned
12 at 9:30. There were about 20 persons present at this meeting.

00034

Student Study Sheet
(One Per Student)

VIII. The student will write good headlines applying the rules of headline writing.

Headline Guidelines

1. The head should be summary of the news story, not a mere label.

2. The headline should contain as many specific facts as it is possible to include. It should answer as many questions as a summary lead.

3. The content of a headline over a news story should be taken from the lead of the story. When additional facts are needed for minor decks, you may have to delve deeper into the story.

4. Each succeeding deck should contain new information.

5. Put a verb, expressed or implied in each headline. Strong verbs are more effective.

Exercise #1 Write the headline for the following stories

Story 1

David Crockett, famous backswoodsman and pioneer scout, will step from the pages of history in an impersonation to be given in Armstrong hall today during seventh hour.

Cloud Smith of the speech department of the University of Nebraska will present featuring a three-act play about David Crockett. Taking the part of six characters, Mr. Smith will dramatize this story of Tennessee romance without the aid of scenery, costumes or make-up.

The admission to the assembly is 5 cents and the proceeds will go toward re-establishing the Engle-booster organization.

*Copy intentionally has been left with some errors to practice copyrading.

00035

Story 2

Omaha, Neb. - (Exchange) Omaha South high school students are writing their own absence excuses under a new system which will be continued if it works well.

"We believe it is better psychology - we think it may stimulate students to give more exact reasons for their absences," says Principal R.M. Marrs.

Mr. Marrs said there seems to be no increase in absences and that students are "refreshingly frank in their replies." The old system, by which parents write the excuses, is being continued in other city schools.

Story 3

A scene from "Annie, Get Your Gun," starring four faculty members, will preview this fall's major production in a speech assembly at 8:35 next Thursday morning in social hall.

The faculty members composing this preview are....

00036

Student Study Sheet
(One Per Student)

CAREERS IN THE WRITING FIELD:

Newspapers

proofreader
copy editor
copy reader
headline writer
advertising writer
sportswriter
home and family editor
agriculture editor
financial editor
business editor
legislative writer
general feature writer
drama and movie critic

Magazines

reporter
copy writer
copy reader
proofreader
photo-journalist
subject specialist:
(write on virtually any special subject which magazine might include whether general, news, technical magazine.)

Advertising

copywriter
direct mail copy writer
newspaper adv. copy writer
radio adv. copy writer
TV advertising writer
contact and copy writer
merchandizing copy writer
promotional copy writer

Publishing Houses

proofreader
copy editor
text book editor

Businesses and Corporations

public relations writing
employee communications (company publications)
training materials
manuals
news releases
advertising
technical writer

Universities

information specialist at State Universities
(How to materials in special fields)
public relations
alumni & fund raising publications

Governmental Agencies

write public information materials
publicity for programs
technical writer

Others

free lance writer (for any media)
greeting card writer
children's stories
professional speech writer
research writer
polling

00037

Introductory Statement

The Story of Magazines Today

Magazines, from the time they were first published in this country in the mid-1700's, have remained regional, even national, in distribution. In contrast, newspapers are mainly local in distribution. Magazines, coming out less frequently and making little pretense at carrying spot news, have managed to gain national acceptance and far greater circulation. A single magazine, then, is likely to have a wider influence than one newspaper.

An estimated 20,000 different magazines are published in the United States today. They come in all sizes, frequencies, formats, and subjects. There is no such thing as a "typical" magazine, as there is a "typical" newspaper.

Careers in the Magazine Field

Reporter
Copy Writer
Copy Reader
Proofreader
Photo-journalist
Illustrator
Subject Specialist (Writes on virtually any special subject, news release, or injects a critic's opinion)
Promotional Copy Writer
Merchandising Copy Writer
Free Lance Writer
Research Writer
Cartoonist
Editor
Advertising

Categories of Magazines

The Ayer Directory uses these classifications for magazines of general circulation:

Amusements
Art & Antiques
Astrology
Automotive
Aviation
Babies
Brides
Business Executives
Child's Interest
Clubs & Societies
Comics and Comic Technique
Crafts, Models, Hobbies & Contests
Dogs
Dramatic and Theatrical
Dressmaking and Needlework
Educational
Export Consumer Magazines
Fashion
General Editorial
Home and Garden

Categories of Magazines (continued)

Literature
Mature Age
Men's
Motion Pictures
Music
Parent-Teacher & Children
Photographic
Poetry
Radio & Television
Society, Sports
Travel & Tourism
Underground
Women's Publications
Youth

News Magazines

There are three well-known magazines, published weekly:

Time
Newsweek
U.S. News and World Report

More than 2,300 other magazines print news, notable example being Business Week and Sports Illustrated.

Classification Groupings of Consumer Magazines
taken from: Wolseley, Rolan E.: The Changing Magazine, Hastings House, New York, 1973 pp 136-7.

Classifications	Examples
Airline Inflight	The American Way
Almanacs and Directories	The Old Farmer's Almanac
Arts and Antiques	Art in America
Automotive	Motor Trend
Aviation	Flying
Babies	Your New Baby
Boating and Yachting	Yachting
Brides	Modern Bride
Business & Finance	Business Week
Campers, Recreational Vehicles, Mobile Homes and Trailers	Mobile Living
Camping and Outdoor Recreation	Northeast Outdoors
Children's	Jack and Jill
Civic (Male)	Kiwanis
College and Alumni	American Alumni Magazine
Comics & Comic Techniques	Gold Key Comics Group
Crafts, Hobbies & Models	World Coins
Dancing	Square Dancing

00089

Classifications	Examples
Detective	Master Detective
Dogs and Pets	Dog World
Dressmaking & Needlework	Singer Showcase
Editorial & Classified Advertising	Classified, Inc.
Education and Teacher	Early Years
Entertainment Guides & Programs	Cue
Epicurean	Bon Appetit
Fashions	Vogue
Finance	Stock Market
Fishing and Hunting	Field & Stream
Fraternal, Professional Groups, Service Clubs & Associations	Hadassah
Gardening (Home)	Home Garden
General Editorial (Class oriented)	Natural history
General Editorial (Mass oriented)	Reader's Digest
General Editorial (paperback)	Fawcett Ad Inserts
Health	Life & Health
Home Service and Home	American Home
Horses & Breeding	Western Horseman
Labor - Trade Union	Labor Press
Literary - Book Reviews & Writing Techniques	The Writer
Mechanics and Science	Popular Mechanics
Men's	Saga
Metropolitan	The Washingtonian
Military and Naval	The Retired Officer
Movie, Radio, TV and Records Personalities	T.V. Star Parade
Music	Opera News
Mystery, Adventure and Science Fiction	Fate
Nature and Ecology	Audubon
News	Jet
Newspaper Comic Supplements	Puck
Newspaper Distributed Magazines	Parade
Photography	Camera 35
Physical Sciences	Sky & Telescope
Political and Social Topics	Africa Report
Professional	Clubwoman
Religious and Denominational	Sign
Romance	True Romance
Senior Citizens	Harvest Years
Society	Town & Country
Sports	World Tennis
Travel	Travel & Leisure
T.V. and Radio	Radio Electronics

Classifications	Examples
Veterans	VFW
Women's	Lady's Circle
Women's Fashions, Beauty and Grooming	Glamour
Youth	American Girl

Terminology
(in relation to magazines)

Image - what magazines stand for in the public mind
Avant-garde - seemingly ahead of its time, daring to alienate the "average" reader
Format - physical aspects: its over-all dimensions, typography, layout, cover designs, and sequence of items (governed by capital and profits)
Formula - basic motif, the approach or the philosophical concept of what the management wants the magazine to stand for, what theme and purpose it is to have, what ideas are to be kept in focus (governed by a variety of factors, mostly the reading public)
Faddism - movement of support for something "new" or different, often unrelated to its value, but popular at the time
Magazine Circle - popular influence of a magazine due to efficient business office, capable editors and contributors, interests of the population (example: a woman reader, dressing to look like the sophisticated people in New Yorker ads.) Identification with a certain magazine.
House Organ - magazine created for employees of a given company
Free Lancer - one who writes for more than one magazine and sells his "stories", not his time
Pen Name - (nom de plume) a fictitious name used by an author who wants to avoid identifying himself for the public
Ghost, Ghost Writer - one who does the actual writing of a story attributed to someone else, usually well-known in another field
"Secret Journalism" - the compilation of material, unauthorized, perhaps inaccurate (such as the Khrushchev Remembers book)
"New Journalism" - subjective writing whereby the writer injects his own reactions and views or applies fictional techniques to non-fiction (conversation, for instance) One writer describes it as (2 parts low down, 1 part corn, and a dash of obscenity)

00011

Magazine Unit

Project 1

Find out if the public library has bound volumes of Life and Look, dating back to the 40's or 50's. Compare with those issues of 1971 or 1972 (Life), and of late 1960's (Look). What changes span those 20 or 30 years? What might have caused those changes? How might the impact of TV have contributed to these changes? Why these two magazines, in particular?

Project 2

Look at copies of magazines oriented toward minority groups. What is their content? Are they clearly meant for members of one group and no other people? What do their ads look like? What editorial positions do they take? Are they anti-other racial groups?

Project 3

Look in telephone Yellow Pages for the wholesale magazine distributors and ask them about sales for particular magazines.

Also check with owners of stores that have large newsstands (Dahl's, for instance). What are the ones that sell well in this community? Are they the same as those that are popular nationally? See Page 37 in Print Media.

Are there any rules about placement of magazines in various areas of the display racks? Whose rules? Why?

Project 4

Get two volunteers to interview fashion coordinators of local department stores and write about fashion trends.

Project 5

Get two volunteers to design a questionnaire to be administered to ninth grade home rooms, results compiled, and story written. Poll could be on current music or reading habits.

Project 6

Get volunteers to attend local concert and write a review.

Project 7

Group project - write an analysis of current films seen by students.

Project 8

Design a cover for a new magazine.

Project 9

Draw cartoons for a particular kind of magazine after looking at a variety of such cartoons in different types of magazines.

Project 10

Submit original fiction or nonfiction.

Project 11

Production of a One-Issue Magazine

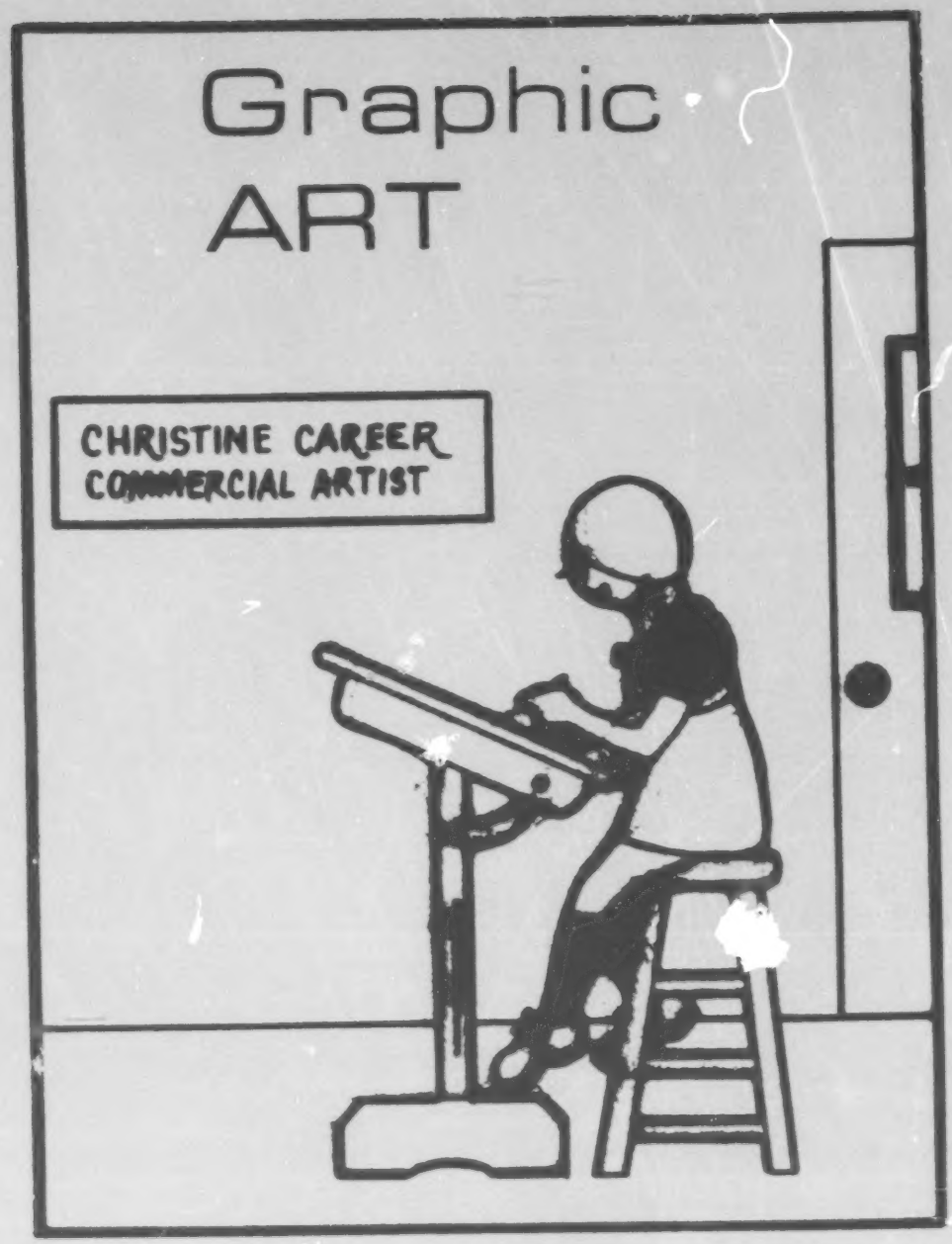
Organizing Session

Students work with teacher to set up a staff to produce one issue of a magazine. Suggested departments and tasks might look like this:

Chief editor and staff	Preparing the magazine's masthead; writing the editorial
Managing editor and staff . .	Naming the magazine, determining the sequence of contents; preparing a table of contents; preparing the cover
News editor and staff.	Writing the news stories
Features editor and staff . .	Writing the feature stories
Reviews editor and staff . . .	Writing the reviews (movies, concerts, books, recordings)
Advertising editor and staff .	Writing ads (if desired)
Graphic arts editor and staff.	Creates art work to coordinate with articles or ads
Production staff	Typing, laying out, reproducing, and assembling the magazine

00013

Graphic ART



Introductory Statement

For most individuals, choosing a course of employment that offers continued progress is an act of singular importance. Therefore, it is important to choose a career that matches individual abilities and goals.

Identifying those learning experiences and basic skills in Graphic Art, which are related to careers in the visual communications industry, is a continuous developmental process. Furthermore, it is a process that is generated and supported by manufacturing interests, corporate enterprise, civic concerns, market and consumer demands. Publications, commercial advertisement, manufactured products, production media and technology (and job related enterprises) provide a continuing demand for the services of individuals who are skilled in graphic art and associated productions media.

One of the main concerns in graphic art education - at this level - is how to maintain and increase the originality and inventiveness characterized by the expressions - and the act of expression - of the young adolescent. Challenging the creative powers of the adolescent can be done best when the implications of creative action prevail in all of the working procedures, in the room climate, in the graphic art materials and tools for expression, and in the motivation of students.

While it may be impossible to develop a formula for challenging adolescents creatively, it is desirable to recognize those procedures which will build for creative action, for example:

Sequential art activities must be flexible, yet involve a progression of challenging and demanding experiences.

Greater emphasis must be given to the correlation between the hand and eyes, the art media, and the tools for visual expression.

Line, value, space, color and texture manipulations must be explored and transferred into meaningful graphic expression.

The corresponding qualities of language art and graphic production media must be recognized and utilized in planning art activities.

Growth in craftsmanship and skill should refer to those things which are technical in nature, such as the increased ability to control and manipulate hand and power tools, i.e., using lettering and ruling pens, T-squares and triangles, drawing cartoons, illustrating, making posters, making a layout, making a simple paste-up, grouping and planning copy, applying the point system, scaling photographs and copy, hand composition paste-up.

Project assignments in graphic art should be shaped and guided by progressive levels or achievement. Thus, the identification and counseling of the skill directed and artistically gifted is based on both objective evaluations and

associations with the individual student and his work. A history of deep and continuous interest in graphic art and production techniques - and work that is marked by orginality and quality - become therefore, determining criteria. Subsequently, they may combine to serve as a basis for making an intelligent career choice.

00016

OBJECTIVES

TO DEVELOP PERCEPTUAL AWARENESS AND AESTHETIC JUDGMENT

TO DEVELOP AN AWARENESS OF GRAPHIC ART WORK AND THE NEED FOR EFFECTIVE VISUAL COMMUNICATION

TO UNDERSTAND THE VARIOUS GRAPHIC ART AND PRODUCTION, MEDIA TECHNIQUES AND PRESSES

TO PRODUCE GRAPHIC ART WORK UTILIZING VARIOUS REPRODUCTION METHODS

TO DEVELOP AN UNDERSTANDING OF THE LANGUAGE EMPLOYED IN THE VARIOUS VISUAL COMMUNICATION MEDIA

TO HELP THE STUDENT EXPLORE THE VARIOUS CAREERS IN THE VISUAL COMMUNICATION INDUSTRY

00017

GRAPHIC ART ACTIVITIES

(L)	Stationary Letterhead
(L)	Friendship Cards
(L)	Greeting Cards
(L)	Christmas Cards
(L or OFF)	Window and Bumper Stickers
(L or OFF)	Banquet Menu
(L or OFF)	Fashion Show Invitation
( )	School Calendar
(S-L-OFF)	Posters (club, play, conservation, safety, health, school event, sales)
(OFF)	School Paper (layout and paste-up)
(OFF)	Cartoon (ad, comic poster, flyer)
(L or OFF)	Bookplate
(OFF)	Billboard Layout
(OFF)	Student Handbook and Directory
(OFF)	Area Wide Map
(S-L-OFF)	Handbill (announcements, sales)
(HAND)	Television Cue and Bulletin Cards
(HAND)	Storyboard for Projected Media (used to visualize presentation and shooting sequences)
(S-L-B)	Album Covers
(OFF-HAND)	Book Jackets

KEY

S - Stencil
L - Letterpress
OFF - Offset
HAND - Individually lettered and illustrated
B - Block prints

00018

Graphic Art Activity Planning

I. In determining the format for a given activity, special attention may be directed at the following:

Art media technique
Production method
Arrangement (horizontal - vertical)
Composition specifications
Informative content
Layout area
Type style
Number of colors

II. To obtain satisfactory results, graphic art should be the result of a plan. The student should be encouraged to develop the habit of making a plan or layout for each assigned activity. There are three types of layouts:

1. The thumbnail sketch: a small quick drawing
2. The rough layout: a generalized composition
3. Comprehensive layout: a precise, detailed plan

Layouts are necessary in order to show what the art work will look like before reproduction.

III. Printing requirements determine in large part the appearance of the final mechanical layout which will contain all or part of the following:

Photo copy
Illustration or cartoon
Heading - sub-heading
Copy
Lettering - Typography
Symbols
Logo
Register marks

IV. Meaningful message, effective design, form and content are brought together and finalized before work is actually begun on the printed piece. Mechanical layout is a synonym for the arrangement of copy - copy consisting of phrases, sentences, paragraphs and illustrations arranged in appropriate blocks. The quickest way to balance a layout is to treat all illustrations, border ornament and color masses as though they were building blocks, i.e. - group the word blocks into phrase blocks and then balance all pictures, spots of color or decorating masses with these phrase blocks according to their size and attraction. The most pleasing and effective layouts are balanced on a point that is about 5% above the actual center of a well proportioned pictorial plane. Since this point is usually measured by the eye, it is called the "optical center".

V. Both Medieval and modern lettering can be separated into three basic groups: Roman, Gothic and Text styles. From these three, all alphabets originate. The simple elements from which they are

00049

composed are easy to form with the speedball pen and lettering brush. All letters composed of uniform width elements are classified with the Gothics and are developed with the style "B" speedball point. Roman, text and italicized versions thereof are made with "C" or "D" pens. Time and effort are minimized by using the size and style of pen or brush which will form the different letters of any given alphabet without subsequent remodeling of strokes. The use of a T-square, ruler and compass in drawing the elements of Gothic block letters is necessary (penciled guide lines are recommended).

"Letter", "mechanical", and "typographical" spacing techniques should be learned via the printers point system and line guage preliminary to work in layout and paste-up. The effective use of contrast, powerful headlines (with the rest of the copy arranged in subordinate groups), balance on optical center, and a generous use of blank space with liberal margins are the first aids to a good layout.

Using a "yard stick" in lettering to measure the width or distance between different letters seldom produces results and is generally detrimental to legibility. Opticallly equalized spacing and optically fitted letters produces pleasing results.

VI. It is difficult to imagine a newspaper without a comic section, an editorial page without a central cartoon, television without animated cartoons, the theater without lively cartoon comedies, magazines and trade publications without gag panels or advertising without cartoons. The cartoon strip alone has created the largest and most abundant iconographical field in history. Its distribution is unequaled by that of any other form of expression, artistic or literary; not even the film can boast, as can the comic strip of reaching a third of humanity.

Any cartoon can be called a commercial cartoon when it is adapted for advertising and publicity purposes. It cannot be said that a commercial cartoon must have certain characteristics of itself, apart from the advertising copy. But if the drawing elicits affirmative answers to these two questions - Does the cartoon seize the reader's attention? Does it augment and support the message? - then it can be considered successful.

Cartoon instruction for production copy should include:

Building the cartoon figure on the oval, triangle and stick
Facial animation and caricature
Cartoon design
Ad eye-catchers
Cartoon message bearers
Line width in a cartoon
Character and special attire
Sports action and spot cartooning
Editorial cartooning
Gag panels
Comic strip

00050

VII. Block printing and silkscreen printing are conventional relief and planographic processes that are used extensively in graphic art. Early introduction to designing and rendering in these media is both rewarding and necessary. Traditional drawing, design and composition techniques may be observed in developing individual art project assignment in this category of instruction.

VIII. Ben Day and Zip-a-Tone tint screens are widely used in graphic art to produce shading, background and other design effects for illustrations, cartoons, charts and graphs, etc. These screens are produced in a variety of densities (percentage of area covered by dots) and a variety of rulings (number of lines of dots per inch). A screen of any given density may be obtained in a variety of rulings. Estimating tint screen values by percentage with the aid of a linen tester (pocket magnifier) is necessary to graphic production. Therefore the student should learn to distinguish the characteristics of each screen value. Line shot and halftone process camera techniques, together with photographic copy and offset lithographic printing, should be studied in conjunction with tint screen value estimation.

IX. Graphic artwork for reproduction involves:

Designing for specific audiences
Creating ideas for utilitarian purposes
Translating ideas and concepts into visual images through the use of design elements, design fundamentals, graphic and photographic techniques
Spatial organization and optical message
Character generations
Integration of text and image
Letterforms, lettering techniques, style of type
Special effects - collage, montage
Designing with the camera
Exhibits, charts, posters, maps, diagrams, illustrations, storyboards, lettering techniques

X. Media techniques and procedural methods to be observed in preparing graphic art for reproduction:

Measurement (ruler and printers line guage)
Scaling
Grid reproduction and tracing
Visuals (lettering styles, illustrative material)
Copy preparation (marking up copy)
Layout (center and off-center)
Transfer
Paste-up
Mechanical layout
Rendering (black and white techniques for line and half-tone reproduction):

00051

.pen and ink lettering and illustration
.dry brush and brush and ink
.scratchboard and linoleum blocks
.pencil and charcoal
.wash drawings
.Ben Day and ink
.glossies (high contrast photographs)
.glossies combined with pen and ink
.two or three color drawings
.three flat colors with pen and ink
.photograms
.photomontages
.mechanical screens
.illustrators halftone

Photography
Proofprinting
Checking press sheet

00053

Equipment

Drafting Sets
Speedball Pen Kits
Gillot pens
Drawing and cutting boards
T-squares
Triangles (30 - 60)
Rulers
Pen holders
Inking Slab
Drymount
Waxer
Rapidograph Pen Set
Silk Screen
Linecut tools
Brayers
Table Press
Linen Tester

Supplies

Stencils
Gum Erasers
Fixative
Magic Markers
Colored Construction paper
Rubber Cement
Masking tape
Pastels
India ink
Water colors
Tempera
Erasers
X-Acto knives
Assorted pencils (graphite, carbon, conte, litho)
Assorted paper
Illustrator's halftone
Camel hair brushes
Lettering brushes
Linoleum blocks
Silk Screen paint
Block printing inks
Tracing paper pads
Ben Day screens
Illustration Board
Zip-a-Tone
Charcoal

00053

Student Study Sheet
(One Per Student)

Careers in Graphic Art

LAYOUT

Newspaper	Periodical
Book	Brochure
Magazine	

DESIGN

Poster	Set
Industrial	Technical
Textile	Display
Interior	Graphic

LETTERING

Title	Display
Advertising	
Greeting	

ILLUSTRATION

Instructional	Systemic
Medical	Fashion
Biological	Magazine
Scientific	Book
Technical	Newspaper

FREE LANCE STUDIO

PHOTOGRAPHY

PHOTO RETOUCHING

CATALOGUE ART

Mercantile and product: illustration and photography

00054

CARTOONING

Advertising

Political

Comic Book

Animated Film

DRAFTING

Mechanical

Schematic

Geographic

Technical

Instructional

PRINTING

Layout and design

Paste-up and Copy

Process Camera

Photocomposition

Stripping

Color separation

Flexography

Gravure

TELEVISION

Graphics

Set Design

00055

Introductory Statement

It has become apparent in past years that a considerable change in graphic arts educational philosophy and application was beginning to affect both industry and educational programs on all levels. Greater industrial utilization of scientific techniques and socio-economic factors to produce both manufactured and custom made products was increasingly evident. Greater stress upon human elements; the element of design; management, including personnel selection and training programs; and recognition of the varied aspects of the graphic arts, all pointed toward a new and different interpretation of graphic arts - visual communication. Graphic Art educators are becoming cognizant of the need for broadened instructional programs. They now see printing, language arts and graphic arts as visual communication tools. These tools should be integrated into the general curriculum for all students, whether they intend to use them to communicate, use them to earn a living helping others to communicate, or as citizens in our society, use them in understanding and appreciation of communication.

The idea of graphic communication should start in the elementary grades. The communication concept should be planted early. It involves words, language, creative writing, drawing, learning to "see" with pictures, learning to convey ideas with these tools.

Many of these elements are already dangling loosely in the present school programs. The communication concept will give them relation and purpose. Further up in the grades, there should be greater involvement in graphics in display, with a deliberate attempt to convey specific ideas and communicate visually. The tie-in with language arts and art is obvious.

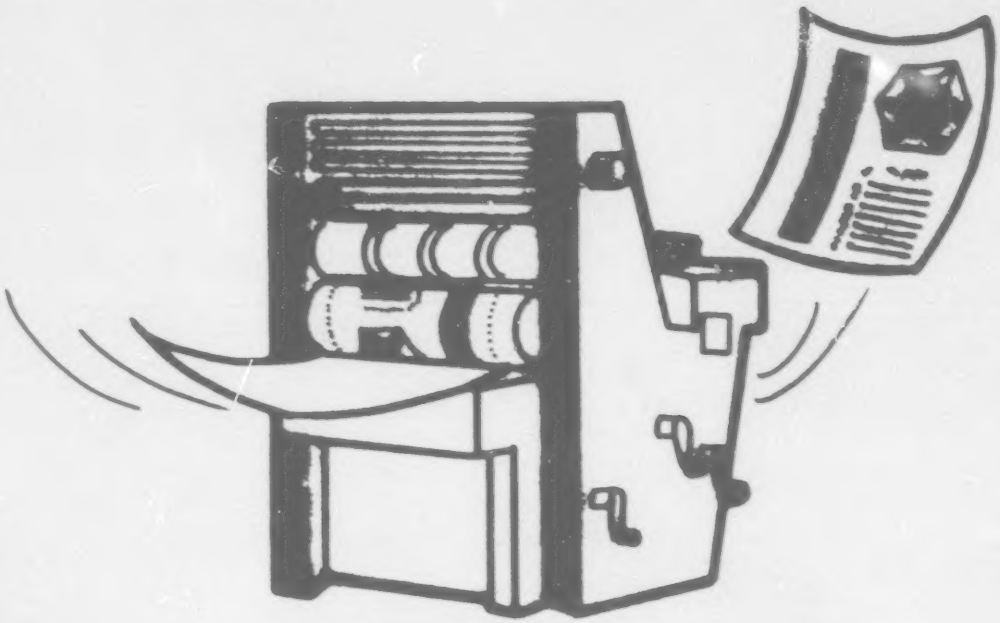
At the junior high school and high school levels, there should be an introduction to the processes of extending the prepared communication to many more people by printing methods. (See figure 1)

Graphic communication in the curriculum involves a creative writing tie with the language arts department. It involves a design - graphic tie with the art department. Graphic communication involves typing and office practice skills, layout and pasteup procedures and the technology of printing. (See figure 2)

Graphic communication is interlaced throughout the education processes; it is an essential part of the total career picture.

It is not the intent of the Graphic Production activity list to present procedures to develop skills in operating equipment, but rather to approach the Graphic Production communication field on a broad exploratory concept basis, so that the student may gain a better understanding of the careers in graphic communication.

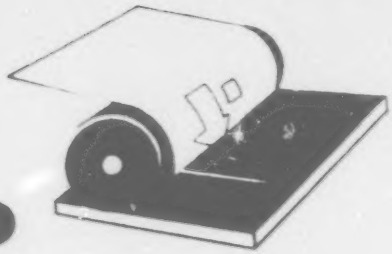
graphic production

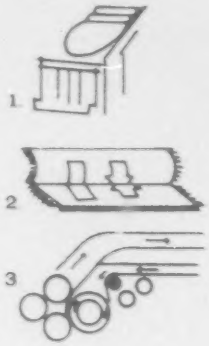


Transparency
&
Student Study Sheet
(One Per Student

PRINTING PROCESSES

Thumbnail descriptions here explain the popular printing processes in use today. Since this is not a textbook, no attempt is made at comprehensive explanations. However, beginners certainly will want to be familiar with the basic differences of these processes.





LETTERPRESS

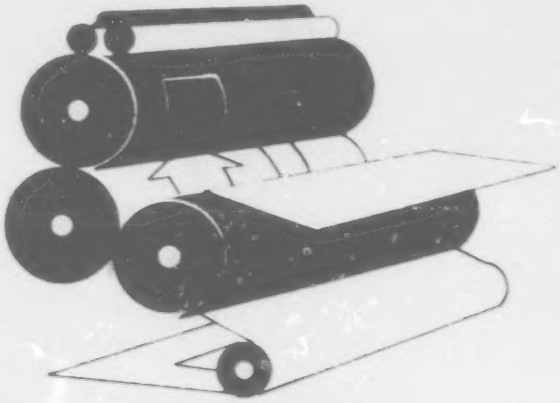
Ink is transferred from a *raised* surface *directly* to the paper. The raised surface (printing "form") may be type which has been set, engravings of copper, zinc, other metal, wood, rubber, or a combination of materials.

There are three major kinds of letterpress equipment:

1. PLATEN PRESS. Paper is fed to a flat surface called a platen which contacts the inked form clamped against the bed of the press. Paper and form meet in a vertical position.

2. FLAT-BED CYLINDER PRESS. Paper is held on a cylinder by grippers and rolled over the printing form locked on a flat bed. Form moves horizontally, the paper revolves over it.

3. ROTARY PRESS. Both paper and plates are on cylinders rolling against each other. Plates (electrotypes or stereotypes) are curved. Paper can be in sheets (sheet-fed) or in rolls (web-fed).



OFFSET LITHOGRAPHY

Ink is transferred from a *flat* surface to a rubber "blanket" and finally to the paper. Each element—the plate, the blanket, and the paper—moves as a cylinder. The principle that grease and water do not mix is the basis of lithography. The word "offset" comes from the process of "offsetting" the image from plate to blanket before contacting the paper.

Thin grained metal (zinc or aluminum) is used for the plate, which contains *all* materials: type, illustrations, and photographs.

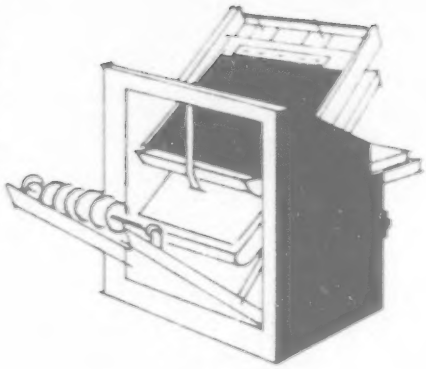
figure 1

00058

GRAVURE

Whereas letterpress uses a *raised* surface, and offset lithography a *flat* surface, gravure uses a *depressed* surface (called *intaglio*) for transferring ink. A copper cylindrical plate is etched with depressions or cells of different depths to hold the ink. Excess ink on the surface is wiped clean by a metal "doctor" blade.

As with the letterpress rotary, gravure presses are made for both sheets (sheet-fed) and rolls (web-fed) of paper. Contact is made directly from inked plate to paper.



SILK SCREEN

Considerably different from the other processes, silk screen printing uses a transfer of ink through the mesh of a silk (or other material) screen stencil directly to the paper, metal, wood, or other final product. The inks usually are deposited in a heavy layer.

00059

Transparency
&
Student Study Sheet
(One Per Student)

BASIC "INGREDIENTS"

Although all the component parts of different printed pieces are rarely identical, there are similar basic ingredients involved in the average commercial job.

The table indicates ten ingredients along with some of the usual sources or suppliers. Note that there is a choice of suppliers in several cases, depending on how the job is assigned.

For the beginner, a thumb-nail description of each of the ten ingredients follows:

1. COPY

This is the written part of the job: the text, descriptions, headlines, tabular matter, etc. Usually it is prepared before layout is made, although in some cases copy is written to fit a pre-conceived layout. Old-timers have their copy finalized *before* it leaves the typewriter to avoid changes that can cause unnecessary costs.

2. LAYOUT

This is the "blueprint" – an artist's conception of the finished job. Layouts are usually prepared on transparent paper with pastels or pencil, then mounted on opaque sheets. Layouts can be very rough, semi-comprehensive, or so comprehensive that nothing is left to the imagination. Normally they are the same size as the finished work.

Changes and corrections can be made easier and far more economically on the layout than in the more finished stages of the job.

3. FINISHED ART

This includes illustrations, hand lettering, charts, color blocks, etc. ready to be made into plates. It follows the layout as a guide. Finished art should be checked carefully, since any changes made later will require new plates. Artwork usually is made larger than final size, in order to allow reduction for the sharpest possible reproduction.

4. PHOTOGRAPHS

Similar to finished art, photographs can be corrected if necessary by retouching, before plates are made. Glossy prints of black and white negatives are usually used. In the case of color photography, several types of originals are used.

5. COMPOSITION

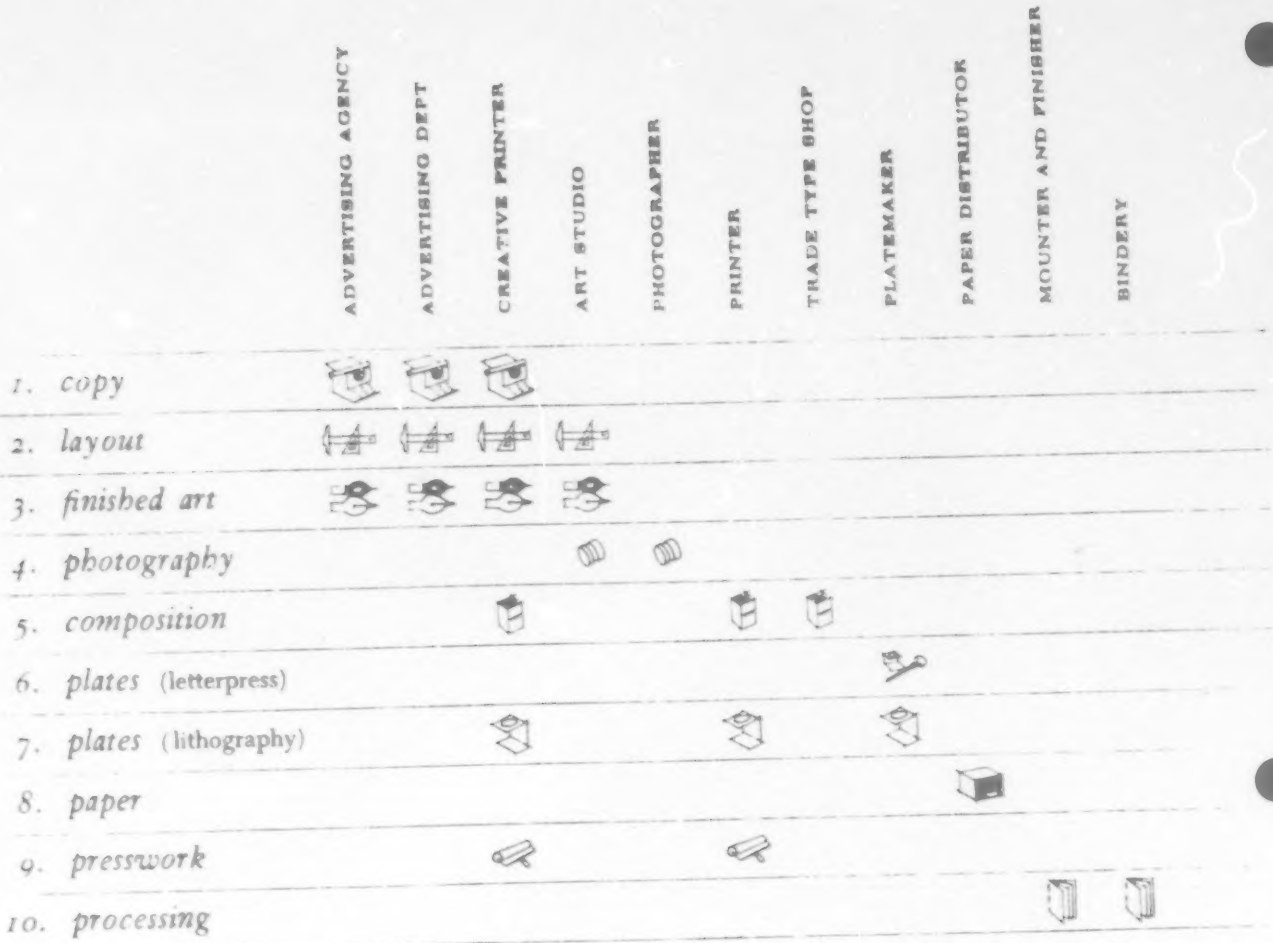
This is copy set in type – either machine set or hand set. Proofs are usually submitted in "galley" form to be read for corrections. It is important to make all corrections on these first proofs. Errors on the part of the typesetter are not charged to the customer. Changes made from original copy are called "alterations," and *are* charged for.

6. LETTERPRESS PLATES

Printing plates for letterpress are usually made on metal through a photo mechanical process. (Wood, plastic, and other materials are also used.) The quality of the engraving, obviously, determines the quality of the reproduction. Proofs are easily pulled for inspection

figure 2

00060



before the job is run, either in page form, or pasted up into a complete dummy.

7. LITHOGRAPHIC PLATES

In offset lithography, *everything* – type matter, photographs, art, etc. – is transferred to a thin flexible metal plate through a mechanical process of photo-chemistry. Proofs are available, in a somewhat more complex operation.

8. PAPER

Unlike some of the other ingredients, printing papers come in an astonishing variety of brands, types, weights, textures, colors, and prices. There is always the right paper for the specific job. It is important to know in advance what paper will be used because many of the other ingredients will be planned accordingly.

00061

9. PRESSWORK

After plates are approved, the job finally is ready to be run. The size and type of press, inks, and method of running will have been determined. Once the press is started, no changes should be made by the customer.

10. PROCESSING

Finished press sheets go to the bindery or processor for any of a number of operations, depending on the job. These include laminating, die-cutting, embossing, cutting, folding, punching, stitching, collating, trimming, etc.

These highlights of some of the steps from conception to finished product indicate that a great deal of careful planning is required to make the final printed job an efficiently produced product, with quality tailored to fulfill the ultimate objective.

Suggested Activity Ideas for Communications-Graphic Production

1. How to make a Pressman's Hat. (See figure 3)

2. Equipment used in the graphic production area

   Activity A - Distributing leads and slugs
   Activity B - California job case

3. How to set and distribute type

   Activity A - Setting type
   Activity B - Distributing type

4. How to pull proofs and make corrections

   Activity A - How to pull a galley proof
   Activity B - How to pull a stone proof
   Activity C - How to make corrections

5. Mathematics for graphic arts and production

   Activity A - The Point System
   Activity B - Point, Pica and Agate Measurements
   Activity C - Point System Applied to Spaces and Quads
   Activity D - Linear Measurements

6. Designing and Setting a Business Card

   Activity A - Design and Layout of Business Card
   Activity B - Setting Type and Printing Business Card

7. Designing and Setting Stationery (Letterpress)(See appendix pp. 167-182)

   Activity A - Design and Layout of Stationery
   Activity B - Setting Type and Printing Stationery

8. Offset Process Projects (See appendix pp. 167-182)

   Activity A - Offset Instructions and Copy for Stationery and Note Pads
   Activity B - Use of Colored Ditto Masters

9. See Graphic Art Activity List

10. See Publications Activity List

11. See Television and Filmmaking Activity Lists

00062

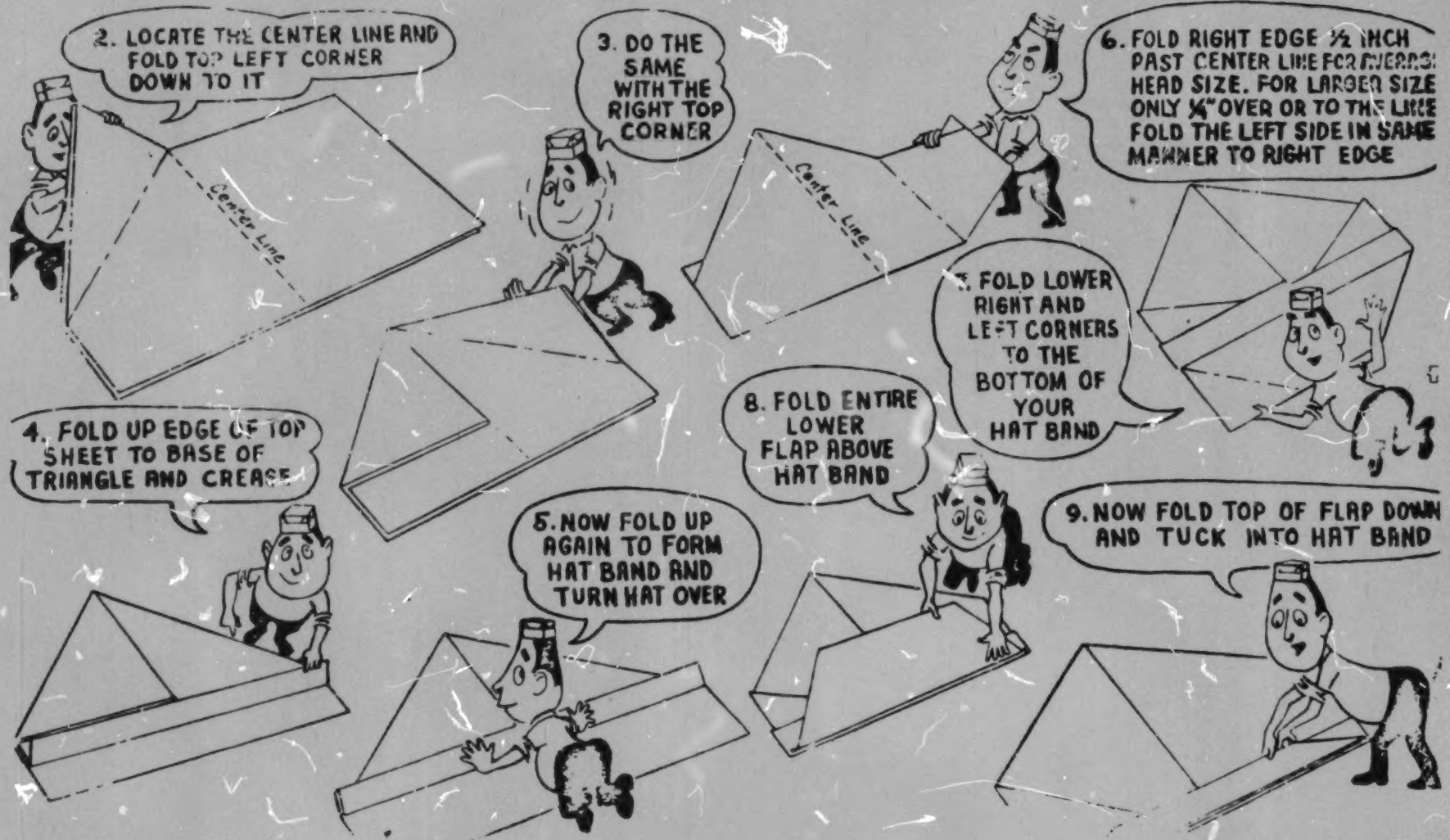
Student Study Sheet
~~(One Per Student)~~

How To Make a Pressman's Hat

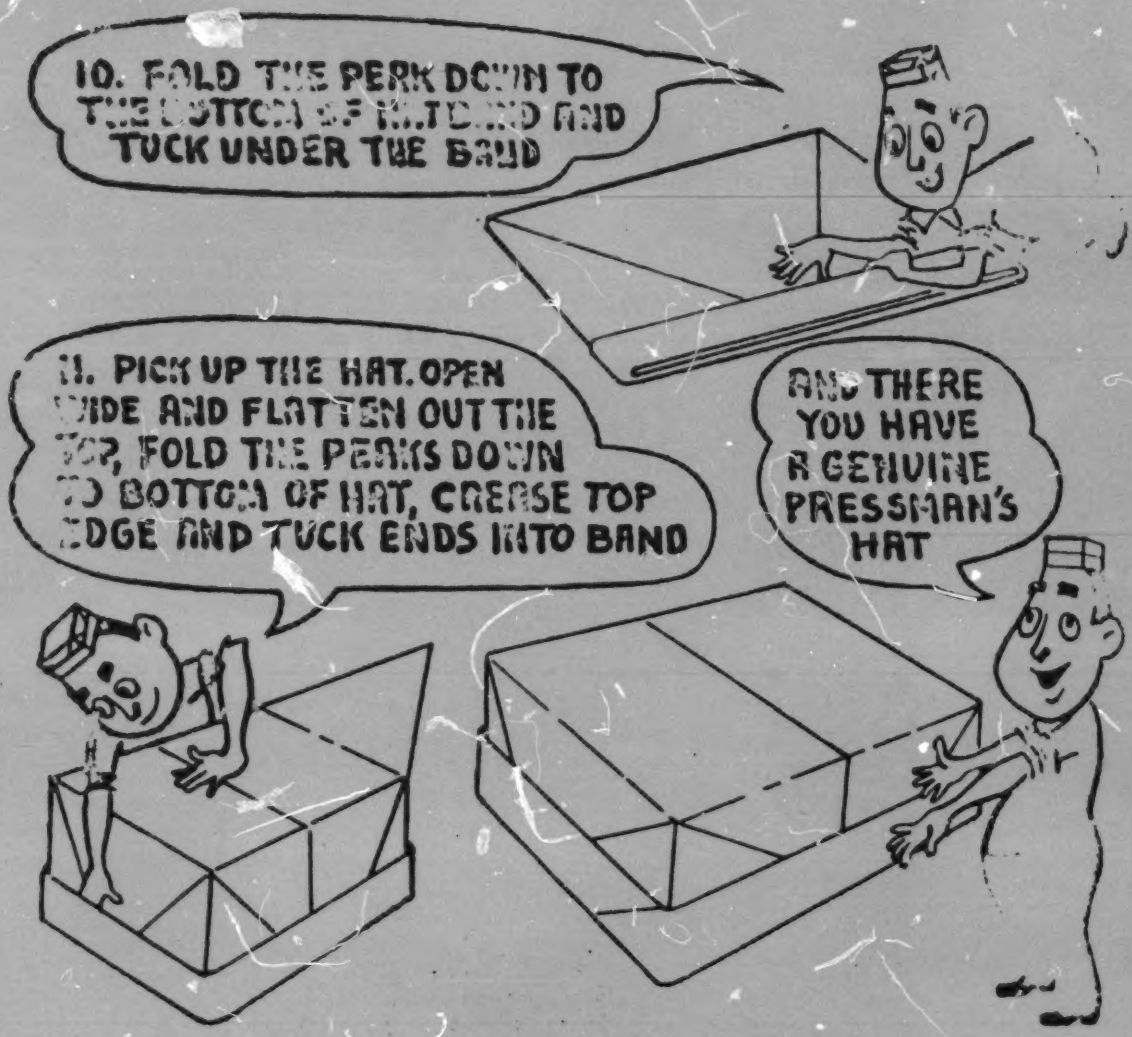
You and Your Friends Can Have Fun
With Your *Des Moines Register* and be
the Envy of your Neighborhood!

figure 3

00063


2. LOCATE THE CENTER LINE AND FOLD TOP LEFT CORNER DOWN TO IT
Center Line
3. DO THE SAME WITH THE RIGHT TOP CORNER
Center Line
6. FOLD RIGHT EDGE ½ INCH PAST CENTER LINE FOR AVERAGE HEAD SIZE. FOR LARGER SIZE ONLY ¼" OVER OR TO THE LINE FOLD THE LEFT SIDE IN SAME MANNER TO RIGHT EDGE
7. FOLD LOWER RIGHT AND LEFT CORNERS TO THE BOTTOM OF YOUR HAT BAND
4. FOLD UP EDGE OF TOP SHEET TO BASE OF TRIANGLE AND CREASE
8. FOLD ENTIRE LOWER FLAP ABOVE HAT BAND
5. NOW FOLD UP AGAIN TO FORM HAT BAND AND TURN HAT OVER
9. NOW FOLD TOP OF FLAP DOWN AND TUCK INTO HAT BAND

00054



For Mom and Dad

Much research has been done to establish the origin of this unique headpiece. It has never been determined when or where the first paper hat was worn, but records show that it was being worn in the United States as early as 1748.

The handmade hat is worn by pressmen as protection against ink, grease, oil and paper lint which otherwise might get in their hair.

Now that the family knows how to make the pressman's hat, Dad can have sonny fold him one if he has to work under the hood of the auto, or if he has a painting job to do. Mom could use one in housecleaning, especially if she is handy with a paint brush.

00065

Equipment Used in the Graphic Production Area

Activity A - Distributing Leads and Slugs

Objective: To acquaint the student with the proper method of handling material, to encourage the use of judgment in storage methods, and to stress the necessity of care, neatness, and accuracy in production operations.

Equipment: Galleys, leads, slugs, storage racks or cases, lead cutter or saw.

Related Information: For greatest effeciency, it is desirable that lead-and-slug racks be kept:

1. neat and clean
2. comfortably full at all times
3. free from bent, battered or inaccurate materials
4. with all leads and slugs resting on edge
5. separate racks for leads and slugs

Procedure:

1. Choose a galley of sufficient width to take longest lead or slug.

2. Place galley of leads and slugs on sloping banks, head to right, and open end to left.

3. Arrange leads and slugs snugly in upright position on galley, with even ends downward, but without regard to varying lengths.

4. Push spacing material away from head of galley to allow space for assembling leads and slugs into graduated lengths.

5. Raise the longest slug by means of a forefinger applied to upper end, and place at head of galley.

6. Take the next longest slug and place it beside the first one.

7. Continue to sort the slugs until all have been arranged in neat tiers according to length.

8. If space on galley is limited, return slugs to rack, sorting according to length and checking with line gauge when in doubt.

9. If space on galley permits, place a large piece of metal furniture at foot of slugs and repeat operation with the leads.

10. Straighten bent leads and slugs if possible; otherwise, drop in hillbox.

11. Trim battered and inaccurate pieces to standard lengths.

12. Put galley and line gauge away.

Questions:

01087

Activity B - California Job Case

Equipment: Paper, pencil, mimeograph chart of California Job Case without letter, etc., identified.

Procedure: Practice locating the following:

1. Capital letters
2. Lower case letters
3. Punctuation
   a. comma
   b. apostrophe
   c. semicolon
   d. colon
   e. period
   f. hyphen
   g. exclamation mark
   h. question mark
   i. quotation marks
4. Ligatures
   1. fi
   2. ff
   3. fl
   4. ffl
   5. ffi
5. Spacing materials
   a. Quads
   b. Em Quad
   c. En Quad
   d. 3-em Space
   e. 4-em Space
   f. 5-em Space

Questions:

00068

Transparency
&
Student Study Sheet
(One Per Student)

LAYOUT OF CALIFORNIA JOB TYPE CASE

The Normal space steps are:

Name of Quad and Spaces	Point Size of Spacing Material
3 Em Quad	
Em Quad	
En Quad	
3-to-Em Space	
4-to-Em Space	
5-to-Em Space	

TO INCREASE:

(One) 3-to-Em Space _____
(One) En Quad (nut) _____
(Two) 3-to-Em Spaces _____
(One) 3-to-Em Space
PLUS
(One) En Quad _____

Don't forget, there are combinations between the above steps to tighten up a line.

TO DECREASE:

(One) 3-to-Em Space _____
(One) 4-to-Em Space _____
(One) 5-to-Em Space _____

PRINTING SCALE

72 points equal 1 inch
12 points equal 1 pica
6 points equal 1 nonpareil or slug
2 points equal 1 lead

Therefore there are:

6 picas to an inch
2 slugs or nonpareils to a pica
3 leads to a slug or nonpareil

ffi		5 to M sp	4 to M sp	,	k		1	2	3	4	5	6	7	8						$	&
j	b	c	d	e		i		s		f	g		ff	9	A	B	C	D	E	F	G
?													fi	0							
!	l	m	n	h		o	y	p	w	ŝ			N quad	M quad	H	I	K	L	M	N	O
z																					
x	v	u	t	3 to M sp		a	r			;	:		2 & 3 M quads		P	Q	R	S	T	V	W
q										.	—				X	Y	Z	J	U	H	HH

Difficult Letters (Identify by using nick)
b, d, l, n, p, q, u, ,
(lower case) o (CAP) O Numeral 0

Student's Name _____

000059

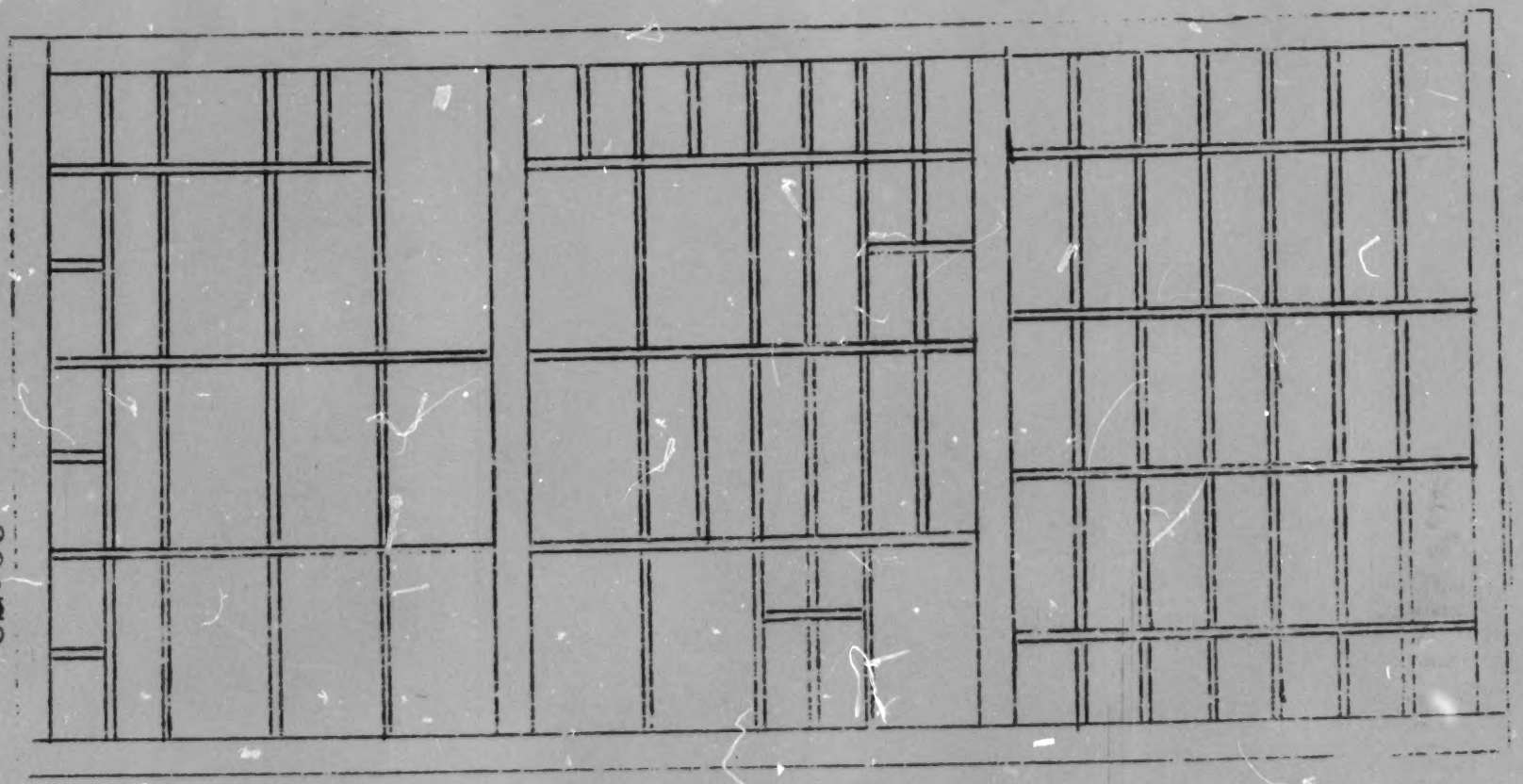
Suggested Test on California Job Case

Name _____

Date _____

Class _____

Test Grade _____



DIRECTIONS:

Mark each box in this diagram
with the correct letter, etc.
(use lower case letter where needed)
(use capital letter where needed)

Layout of a _____
(Insert complete name)

57
00070

How to Set and Distribute Type

Activity A - Setting Type

Objective: To acquaint the student with the best way of learning the case, setting type, and distributing type; also to familiarize him with the correct use of equipment and materials.

Equipment: Type, type cases, composing stick, leads, slugs and string.

Related Information:

1. A knowledge of hand composition is essential to the success of the machine operator.

2. The careful graphic production worker never takes chances. Remember this when performing various operations in the production area.

3. The necessary operations cover such important essential of good graphic production as knowledge of tools, choice of type face, selection of type size, and decisions regarding correct measure, arrangement, capitalization, punctuation, identation, spacing, justification and word division.

4. Because of the importance of establishing correct habits and skills at the beginning, no operation in type setting should be slighted.

Procedure:

1. Study copy and instructions.

2. Place copy in position over type case.

3. Set composing stick to proper measure.

4. Place slug in composing stick.

5. Hold stick in left hand at proper angle.

6. Set first word of copy. Spot each letter, pick it up and turn nicks facing out.

7. Continue to set as many words as will go in line, using 3-em spaces between words.

8. Read line for errors and make corrections if necessary.

9. If line is short, crowd in another word or syllable (with hyphen) if possible, by substituting 4-3m for 3-em spaces.

10. If impossible to crowd in word or syllable and retain spacers, space out line by line adding thin spaces or substituting en quads or spaces.

00071

11. If line is too tight, substitute thin spaces for regular spaces.

12. See that line of type is on its feet.

13. Equalize spacing between words.

14. Justify the line.

15. Test line for snugness by leaning it forward slightly.

16. Space out at end of each paragraph with quads (unless remaining space is less than an em when extra space should go between words.)

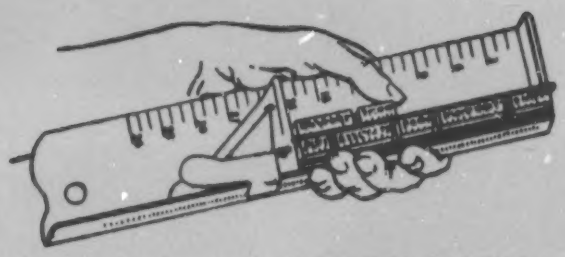
17. Place slug after last line in stick.

18. Remove type from composing stick carefully.

Questions:

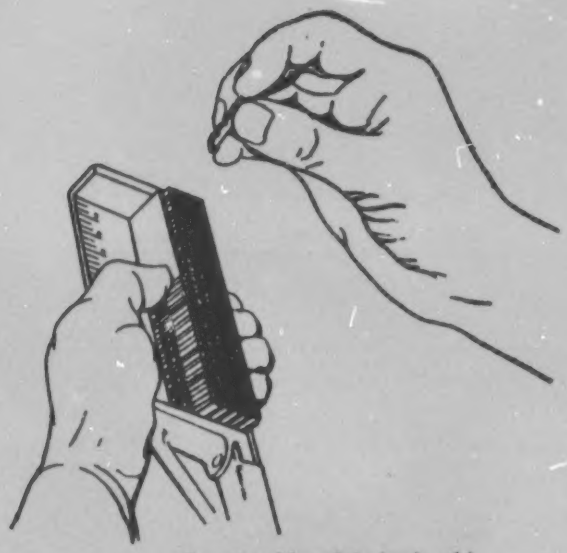
00072

Transparency
&
Student Study Sheet
(One Per Student)

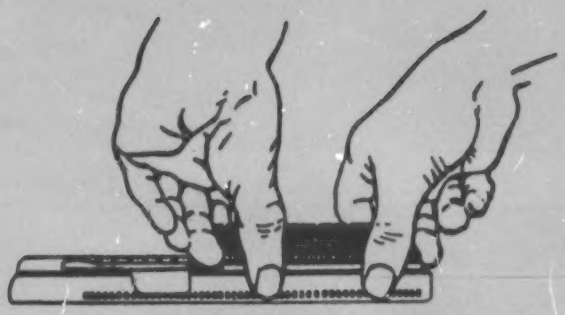


Showing correct position of stick in the hand when setting type. The last letter is supported by the thumb.

Front view, showing correct position of fingers when emptying stick.

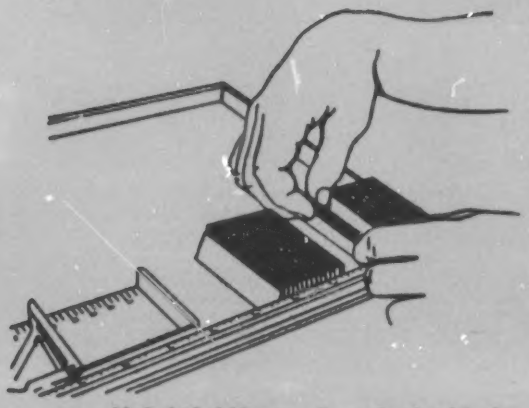


Correct position of the hands, stick, and sticks, in setting type.



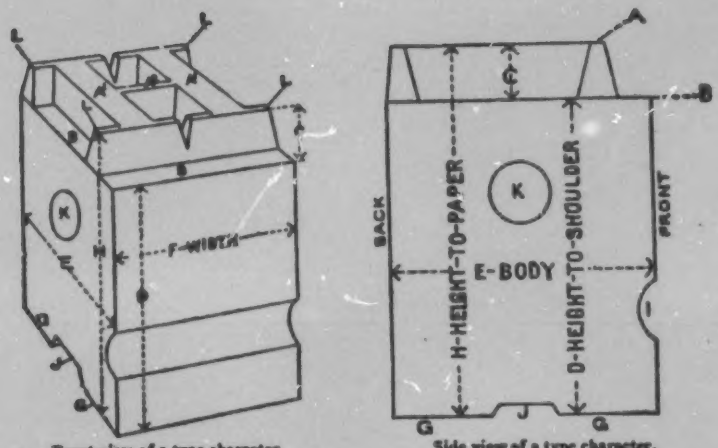
Correct position of thumbs and fingers in grasping type when emptying stick.

In changing spaces or making corrections in the stick the correct letter is used to push the wrong one slightly forward, so that it may be conveniently grasped.



Method of picking up a line to be placed in the stick for correction. The position of the fingers is practically the same as when emptying the stick. Note safe position of the stick when resting flat against the rim of the galley.

00073



Front view of a type character. Side view of a type character.

(A) Face, or printing surface. (B) Shoulder, or top of base. (C) Matrix depth, or distance from face to shoulder; the sloping side from face to shoulder is called the neck or beard. (D) Base: all metal below the shoulder. (E) Body: back to front of base, called the point size. (F) Width: from side to side, called the set by typefounders. (G) Feet. (H) Height: feet to face. .918 inch. (I) Nick: guide to compositor when setting. (J) Groove: the place where the metal enters mold; it is planed after casting. (K) Pin mark; not to be found on type cast on automatic machines; formed by a movable pin on Bruce casting machines, which aids in ejecting type from the mold; it assists in identifying its manufacturer. (L) Serifs: small projections at the ends of letters.

00071

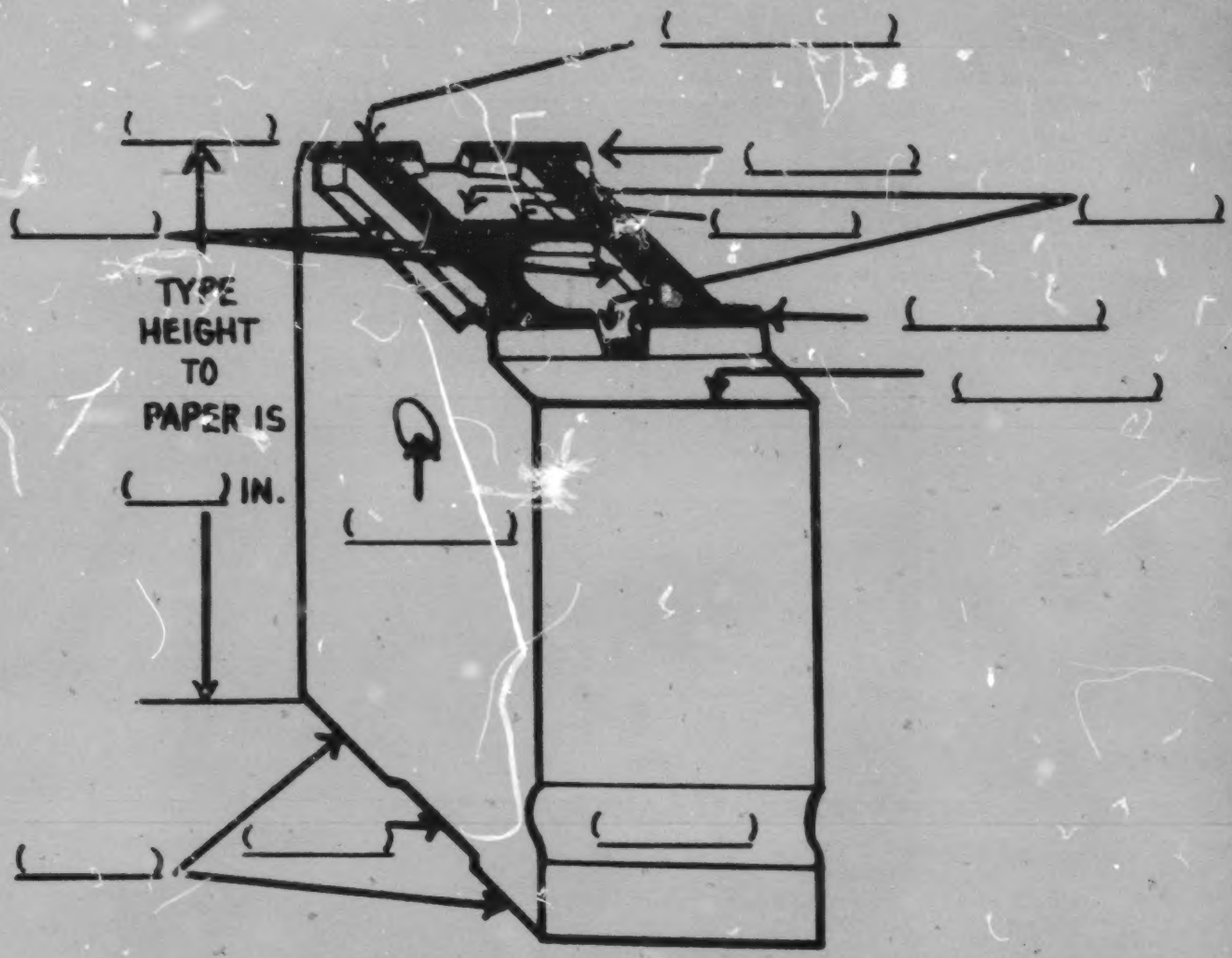
Anatomy of a Type Face

Name _____

Date _____

Class _____

Test Grade _____

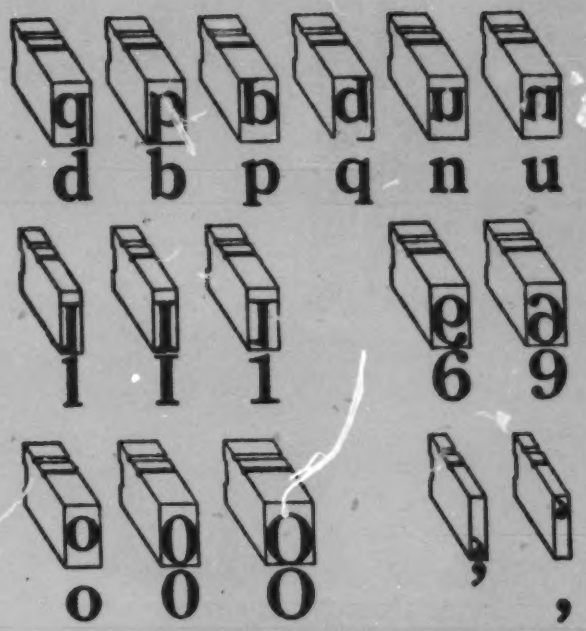


(Write your answer on lines provided.)

Name the parts of type.

1) SHOULDER
2) PIN MARK
3) GROOVE
4) BEARD
5) NICK
6) SERIF
7) COUNTER
8) FACE
9) FEET
10) ___ TYPE HEIGHT

Transparency
&
Student Study Sheet
(One Per Student)



The upper rows show how the difficult characters look on the type when held nick up. The lower rows show the way the same letters look when printed.

00078

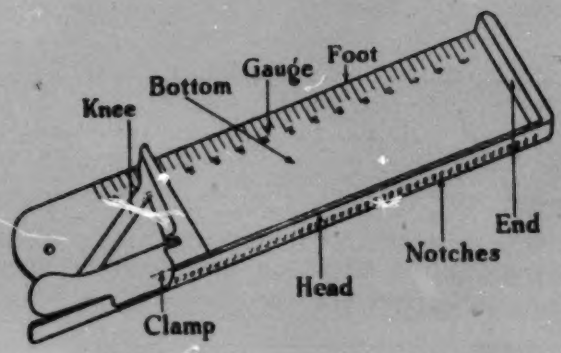
Transparency
&
Student Study Sheet
(One Per Student)

The space between tall buildings and tall letters appears to be less than between low ones. Printers overcome this optical illusion by adjusting the space according to the height and compactness of the letter

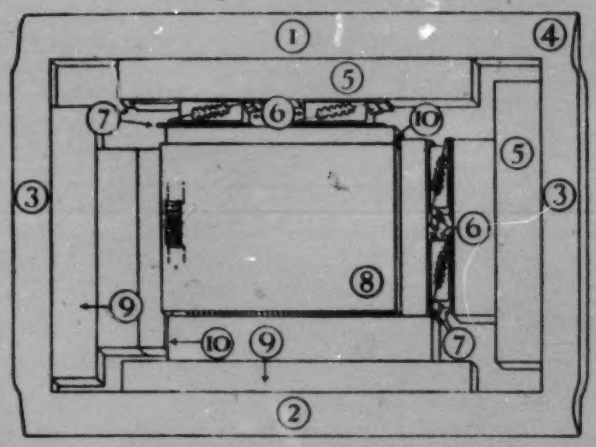
It is sometimes desirable to mortise certain large letter to prevent unsightly gaps. This practice was followed by the ancient stonecutters on the Trajan column.

00077

Transparency
&
Student Study Sheet
(One Per Student)



The parts of a composing stick, including head, foot, end, bottom, gauge, notches, knee, and clamp.



Various parts of a platen-press form: (1) top, (2 bottom, (3) ends, (4) chase, (5) wood furniture, (6) quoins, (7) regiets, (8) type page, (9) solid parts of form, (10) places were furniture sometimes binds.

00078

Student Study Sheet
(One Per Student)

I. Setting Regular Indention

The idention of a paragraph is regulated by the width of the measure. The wider the measure, the more the paragraph should be indented. An em quad is used for the idention of paragraphs set 18 picas or less.

II. Setting Hanging Indention

In some compositions, set for easy reference, paragraphs are not indented in the usual manner, but the first line is set flush and subsequent lines are indented. This form of indention should not be overdone.

III. Setting Inverted Pyramid

The inverted pyramid is a gradual shortening of centered lines. It is useful in title pages and many kinds of jobwork. Lines should be indented uniformly, bring the matter as nearly to a point as it can be set.

IV. Setting Pyramid Indention

The only way to do a thing well is to do it over and over again, because habits are not made in a minute, all thoughts and actions, all arts and crafts, are founded upon habits; but facility is acquired only with repetition.

00079

Student Study Sheet
(One Per Student)

V. Setting Squared Indention

LINES SET IN CAPITAL LETTERS SHOULD HAVE MORE SPACE BETWEEN WORDS THAN LINES SET IN LOWER - CASE LETTERS.

VI. Setting Stairstep Indention

A stairstep indention is one in which the lines of type are so arranged that they follow each other diagonally in the above manner.

00080

Activity E - Distributing Type

Objective: To acquaint the student with the proper sequence of operations in distributing type.

Equipment: Type case, galley, dead matter

Related Information:

1. Never distribute type until you have compared the face and nick.

2. Clean, accurate distribution is evidence of a skilled operator.

3. In picking up type, either from stick or galley, use the ball of the thumbs and lips of the first fingers, and keep them low on the type to prevent it from buckling.

4. Never use leads to remove type from a stick or galley. Use slugs. They are firmer.

5. Distribute slowly and carefully, correcting mistakes as they occur.

Procedure:

1. Place galley of dead type on bank, head to right.

2. If tied, untie type form carefully, rolling string.

3. Work from foot of galley, using only a few lines at a time for each lift.

4. Support head and foot of lift with full-measure slugs.

5. Lift type by gripping between thumbs and first fingers of both hands, while pressing ends of lines with sides of middle fingers and tilt into position with nicks up.

6. Grasp lift in left hand, thumb at left, first two fingers at right, and remaining fingers acting as a support at bottom.

7. Remove top slug.

8. Always check face and nick of type before distributing.

9. Remove last word or two between thumb and first two fingers of right hand, nick up.

10. Read words removed, sight box and drop each letter signly into its proper place.

00181

11. To separate letter, use trigger movement illustrated.

12. Repeat until all words in line have been distributed; then start on next line in same way.

13. When finished with distribution; return slugs, string and galley to their proper place.

Questions:

1. Why does the printer compare the type he intends to distribute with that already in the case?

2. Why is "dirty" distribution not tolerated?

3. If a letter is dropped in a wrong box during distribution, when should it be retrieved?

4. Why should leads not be used when distributing type?

Transparency &
Student Study Sheet
(One Per Student)

The position of the fingers varies with the size of the lift when distributing type.

Proper method of releasing the letters when distributing type.

00083

How to Pull Proofs and Make Corrections

Objective: To explain the importance of good proofs, how they may be pulled and how corrected.

Equipment: Proof press, ink, proof paper, brayer, galley of type, string planner, mallet and tweezers.

Activity A - How to Pull a Galley Proof

Related Information:

1. Good proofs make proofreading easier, show up minor defects, and may be the means of obtaining valuable orders for printing.
2. Galley proofs are pulled on a proof press while the type is on a galley.
3. Stone proofs, used occasionally, are pulled while the type is in direct contact with a stone.
4. A small quantity of ink should be applied to the press or ink slab at a time and should then be distributed evenly and thoroughly.
5. When inking type, the brayer should be rolled back and forth several times, applying only a very light pressure. To obtain better control and eliminate chance of damage to type or engravings, always hold brayer with handle perpendicular to type being inked.
6. After proofs are pulled, type should be washed carefully with rag and cleaner.
7. Keep open end of galley elevated when carrying type.
8. Center proof paper on type form for uniform margins.
9. Running roller from foot toward head of galley will prevent dquabling of tail lines.

Procedure:

1. Tie up type if there is any danger of pieing.
2. See that bed of press is clean.
3. Place galley on proof press, with open end toward cylinder.
4. Center type sidewise on proof press by shifting galley.
5. Ink brayer lightly.

00081

6. Ink type by passing roller both directions of form.

7. In lifting brayer from form at the end of each stroke, do so gently to avoid the possibility of lifting type from the form.

8. Sag center proof paper onto inked type, releasing ends.

9. Take impression slowly.

10. Lift paper by end or corner, stripping gently from form.

11. Examine proof for results.

12. If proof is okay and only one copy is desired, wash type gently.

13. Remove galley from press, using both hands.

14. Return galley to storage rack.

Questions:

1. Why is care necessary in inking the brayer.

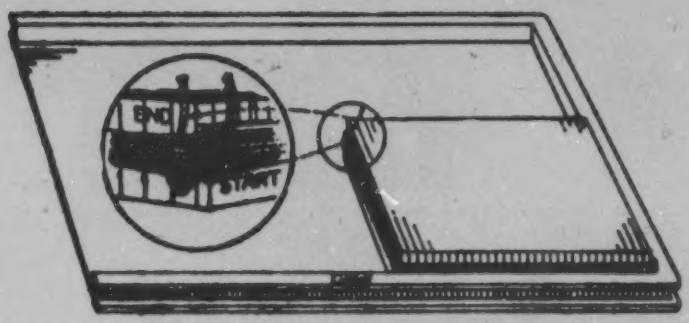
2. Why should type be centered sidewise on a proof press?

3. Why must care be used in inking a form of small type?

4. How may squabbled lines be avoided at foot of galley when pulling a proof?

85

Transparency
&
Student Study Sheet
(One Per Student)



The bottom corner illustrates in detail the approved step method of tying up a page.

HOW TO PULL A GALLEY PROOF

Several distinct operations are required to pull a galley proof. These various operations are illustrated and described step by step in the following pen-and-ink sketches:

Close press. Slide place galley in carriage, feed beneath cylinder.

Roll brayer back and forth across inked slab for even distribution.

Ink the type by passing brayer back and forth across the type.

00086

Activity B - How to Pull a Stone Proof

Procedure:

1. Tie up a lock up type form securely.
2. See that stone is free from grit or dirt.
3. Slide type form onto stone with galley held as nearly flat as possible.
4. Ink type moderately with up-and-down and side-to-side movements of brayer, applying only a very light pressure.
5. Sag center of proof paper carefully onto the inked surface.
6. Inspect face of proof planner to see that it is free from grit.
7. Rest proof planner in center of page with left hand and take impression by tapping center of planner with mallet.
8. Lift the proof planner carefully in moving to a new position by raising one edge.
9. Lay proof planner on its side on stone.
10. Strip paper carefully from inked page by end or corner.
11. Wash type with rag saturated with gasoline or other type wash.

Activity C - How to Make Corrections

Related Information:

1. Proof marks are a code used to save extensive writing or explanations. Every printer (student) should know these.
2. Liberal margins on proofs add to appearance of typography and provide ample room for marking.
3. Guide lines on proofs are used in locating corrections.
4. Minor type corrections are best made on a galley placed conveniently on a type case or cabinet. Difficult corrections should be made in the composing stick.
5. Corrections are started at the head of the galley.
6. Tweezers, if carefully used, are a great convenience in making type corrections.

7. Minor corrections may be made in the form while on the stone or, in emergencies, directly on the press.

Procedures: 1. Place the galley of type to be corrected on a convenient case or cabinet.

2. Start at the head of the galley with the first line to be corrected.

3. To remove a letter from a line of type, raise the entire line by applying pressure to both ends. When slightly elevated, use the side of the galley as a support, while the left hand grasps the offending letter, the remaining letters being permitted to drop back on their feet.

4. If tweezers are used in making corrections, first loosen the type immediately surrounding the word containing the error, before attempting to grasp the word with the tweezers. Short words should be lifted in their entirity. Care should be exercised, when separating long words, to see that the tweezers do not scratch the face of adjoining letters.

5. After the correction is made, again justify the line by equalizing such spacing as is necessary.

6. Lines that promise difficulty in spacing on the galley should be lifted into a stick to be corrected. This, of course, applies to all run-over lines.

Printer's System of Measurement

Activity A - The Point System

Objective: The knowledge of the printer's point system is important in understanding and handling many of the measurements necessary in graphic arts and production. This system is the accepted standard communicating dimension. It should be learned as one of the preliminary steps to any work in the graphic arts and production. This activity will familiarize the student with the point system, and enable him to understand it.

Related Information: The printer's point system consists of the following measurements:

72 points - 1 inch

12 points - 1 pica

6 points - 1 nonpareil or slug

2 points - 1 lead (Lead is always 2 points unless otherwise specified, 1 point lead, 3 point lead, 4 point lead.)

Therefore there are: 6 picas in an inch

2 slugs on nonpareils to a pica

3 leads to a slug or nonpareil

Newspaper advertisements are measured in AGATE lines which are 5½ points high.

Equipment: Pencil, rubber cement, waxer, printer's line gauge, photographic print trimmer or other means of accurately cutting rectangles of paper to precise sizes, black paper, illustration board.

Activity B

Procedure:

1. Outline a paper area 9" x 12", and an image area of 8" x 10" on a piece of illustration board.

2. Using the line gauge, trim seven squares of paper (black) to the exact dimensions specified in the rough layout. (See Illustration 18 A)

3. Paste these down in the position shown, and cover the completed paste up with a protective cover.

Activity C - Point System Applied to Spaces and Quads

1. The spacing materials are:

   Em Quad

   En Quad

   3-em Space

   4-em Space

   5-em Space

Activity D - Linear Measurements

Transparency
&
Student Study Sheet
(One Per Student)

Width in Points of Point-set Spaces				
Body Size	3-em Space	4-em Space	5-em Space	Thin Space
6 point	2	1½	1¼	1
8 point	3	2	1½	1¼
10 point	3½	2½	2	1¾
12 point	4	3	2½	1¾
14 point	5	4	3	2

All spaces were formerly cast to fractions of an em, but this unit has now been displaced by the point.

Various Combinations of Spaces

Name of Spaces	Comparative Width
3-em	▮
5-em+5-em	▮▮
5-em+4-em	▮▮
En quad (4-em+4-em)	▮
3-em+5-em	▮▮
3-em+4-em	▮▮
3-em+3-em	▮▮

Showing gradual increase in thicknesses of spaces when combined for use between words.

The Point System

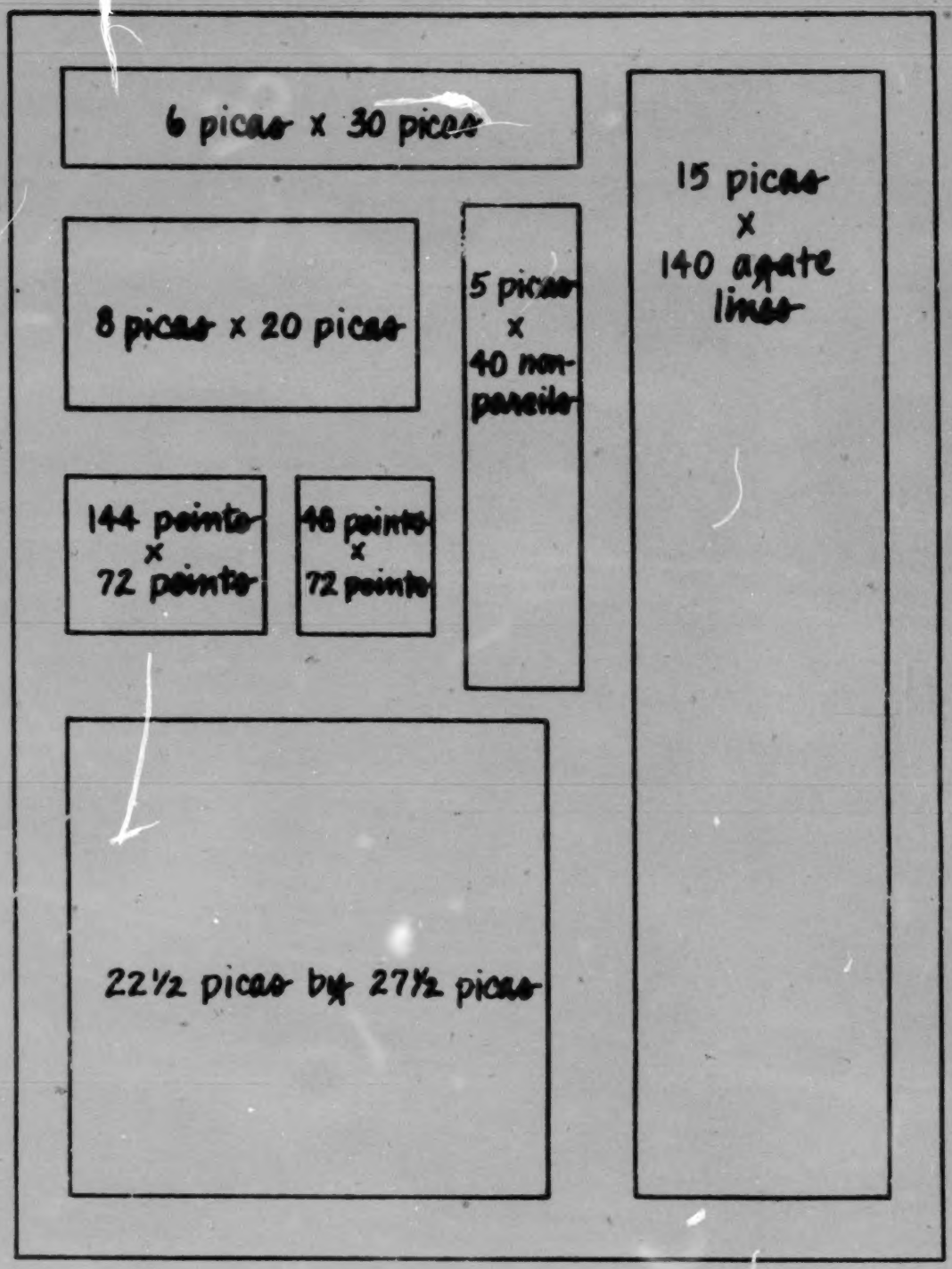
6 points = 1 nonpareil
12 points = 1 pica
6 picas = 1 inch
therefore
72 points = 1 inch
72 picas = 1 foot

Point — Nonpareil — Pica

Since 6 picas are only .996 of an inch, 72 picas really fall .048 of an inch (nearly 4 points) short of a foot. The slight difference will be readily apparent if the student will measure a foot rule with a pica line gauge.

The printers' system of measurement in brief.

Point System



Designing and Setting a Business Card

Objective: To analyze, copy, make layout and set a business card; to exercise judgment in the choice of type and arrangement of type groups.

Equipment: Pencil, paper, type, composing stick, galley, leads, slugs, ink string, stock and press.

Related Information: To be acceptable, a business card should be:

1. Attractively arranged.
2. Carefully balanced.
3. Set in pleasing type.
4. Carefully printed.
5. Printed on good stock.
6. Printed with good ink.

Activity A - Designing and Layout of Business Card

- See Graphic Art Activities

Activity B - Setting Type and Printing Business Cards

1. Analyze copy.
2. Mark copy for measure, type, size, and type style.
3. Set type lines.
4. Empty composing stick and place type on galley.
5. Space out and carefully group related parts.
6. Measure for margins with folded card.
7. Place slug top and bottom; tie.
8. Pull proof, using care not to injure type by too heavy impression.
9. Make corrections needed.
10. Lock-up form for press and print.
11. Wash up equipment and replace material for future operations.

Designing and Setting Stationery

Objective: To acquaint the student with correct methods of designing and setting distinctive stationery (letterheads), and to give information concerning selection of stock and ink. (See appendix for letterhead ideas)

Equipment: Pencil, paper, type, composing stick, galley, leads, slugs, string, ink, stock and press.

Related Information:

1. Type groups should not be scattered unnecessarily.
2. The preferred width for wide-measure letterheads is 45 picas.
3. Top margin should be at least 3½ picas, preferably more.
4. Select a stock which has the correct feel, color, and finish.

Activity A - Designing and Layout of Stationery

- See Graphic Art Activities

Activity B - Setting Type and Printing Stationery

1. Analyze copy.
2. Mark copy for measure, type, size, and type style.
3. Set type lines.
4. Empty composing stick and place type of galley.
5. Space out and carefully group related parts.
6. Measure for margins.
7. Place slug top and bottom; tie.
8. Pull proof, using care not to injure type by too heavy impression.
9. Make corrections needed.
10. Lock-up form for press and print.
11. Wash up equipment and replace material for future operations.

Student Study Sheet
(One Per Student)

Careers in Graphic Communications

I. Production

A. Composing Room

1. Composition
2. Layout Man
3. Proofreader
4. Linotype-Intertype Operator
5. Monotype Operator
6. Imposition-Lock-up
7. Machinist

B. Letterpress

1. Pressroom Careers
   a. Cylinder
   b. Rotary
2. Platemakers
   a. Photoengravers
   b. Electrolypers
   c. Stereotypers

C. Offset-Lithography

1. Pressroom Careers
2. Cameraman
3. Strippers
4. Platemakers

D. Bindery

E. Shipping and Receiving

Career Opportunities

A. High School Level

Check minimum age law of state...union...nonunion...inplant training...

Advertising - should have some background in art...will usually start out as a messenger, mailclerk, may advance to copywriter, artist paste-up.

Architecture - best to have taken drafting in high school... must have a 12 year apprenticeship for an architect's license, will usually get a junior drafting job...progress through senior draftsman to designer.

Commercial Art - (Graphic Design) present a portfolio at job application...helpful to have taken courses in art and drafting in high school...usually starts out at separating colors... ruling pen work...cutting mat...or mechanical work such as paste-up. As talent develops may become specialist in certain area...artist. renderer.

Drafting - should take courses in drafting in high school... will usually start out as tracer...correcting old drawings... specialization will occur as skill develops. May become a designer.

Graphic Arts - (Printing and Publishing) - apprenticeship required in all union shops...depending on high school training...5 main areas...composing...photoengraving...printing press man... lithographic...book binding.

Photography - previous experience through part-time jobs-best to take photography in high school...4 types of photography... documentary...industrial...commercial...portrait. All have many subdivisions...all starting jobs in field similar...dark room assistant...set up lights...

Sales should have some background in economics and psychology. Found in all fields of visual communications - requires on the job training...learn about product to be sold...job areas... television...magazines...movies...newspapers.

Television - 4 main areas...programming...engineering...sales... general...based on potential...few jobs found at high school level...menial jobs.

Writers - required in all fields of visual communication...must have knowledge of English and journalism...usually start out as office help...proceed to small assignments.

Student Study Sheet
(One Per Student)

B. Technical or 2-Year College Level

Advertising - all jobs require art or technical school training... types of jobs available...art director...layout...lettering... paste-up...may advance to advertising manager...research director.

Architecture - to become licensed requires 2 years training and 5 years apprenticship...usually start out as assistant draftsman in an architectural firm...proceed to senior draftsman...designer ...construction contract administrator.

Commercial Art (Graphic Design) - will usually take courses in art and design as well as courses in photography...present a portfolio...may become a renderer...letterer...illustrator... depending on ability...if especially talented...fashion illustrator...greeting cards...book illustrator...technical drawing.

Drafting - start out as junior draftsman...independent designer... whole visual communications field open.

Graphic Arts (Printing and Publishing) - apprenticeship required in all union shops...technical training cuts length of apprenticeship...5 main fields...composing...photoengraving...printing pressman...lithographic...book binding.

Photography - technical training will enable one to start out as an assistant photographer...required to present a portfolio... types of photography...documentary...industrial...portrait... commercial...each type has many different jobs within it.

Sales - study economics and psychology...have background in area of selling...each area of visual communications requires on the job training...learn about product to be sold.

Television - jobs available with minimum of 2 years technical training...transmitter technician...sound effects...lighting... video tape technician...jobs available with business school training...secretary...accountant...publicity specialist... stenographer.

Writers - all jobs require a high level of English and journalism... 2 main types of writers...technical; specifications writers... reports...nontechnical; script writer...ad writer...newspaper reporter.

B. 4-Year College Level

Advertising - start out as an assistant copywriter...move to management...may become research director...depends on type of college training.

Architecture - may start out with architectural firm as assistant draftsman...with time will probably start one's own firm after acquiring architect's license.

Communication Design - (Graphic Design) - most colleges offer a B.F.A. in commercial art...present a portfolio...starting jobs will be similar to those at 2 year college level...better chance for higher paying jobs...after working experience, may leave firm to do freelance work.

Drafting - college level are more design oriented usually start out as assistant draftsman...may become self-employed as design consultant.

Graphic Arts - (Printing and Publishing) most college level jobs in this area are of the managerial or editorial type...few college graduates become press operators.

Photography - college level usually specialize in one area of the field along with a broad background in the other areas... after some work experience may try freelance work.

Sales - most college graduates have been trained for managerial work...specialized sales which requires a vast knowledge of the product.

Television - may go into many fields such as: engineers, program directors, traffic managers, designers, no defined areas of television...requires many different types of experiences and education.

Writers - requires a degree in journalism for newspaper work... technical as well as creative writing skills...technical writer; technical reports...script writing...survey and polls.

D. Professional

Foreman

Owner-Operator

Printing Engineer

Production Superintendent

Sales and Estimating

Graphic Communications Teacher

Student Study Sheet
(One Per Student)

Radio

Types of careers and qualifications needed for careers in the radio industry are dependent upon the size and programming policies of a particular station or market. For instance, in a smaller station, an employee may be asked to fulfill the capacities of reporter, disc jockey, newsman and sportscaster. In a larger station each of these may be a separate career in itself. Thus, the list below is not intended to imply either individual careers or clusters, but rather a listing of career functions at most radio stations.

Radio Careers and Descriptions

Program Director - determines and administers the station's programming policies, and plans the most effective program schedule for the station. He supervises work assignments and schedules, and budgetary matters. Many program directors are former announcers who have acquired experience and who have demonstrated an ability for supervision or administration.

Staff Announcer - reads commercial copy, introduces programs and recordings, interviews guests, gives station identification and time signals, and makes promotional and public service announcements. He often writes announcements and script material. He may also operate the studio controls, turntables, tape recorders, and other technical equipment. He has a voice which conveys warmth, sincerity, and integrity. He should have a sound knowledge of English grammar, usage and pronunciation. A knowledge of music is also necessary. Although many stations do not require college graduates, quite a few do and the number is growing.

Special Program Performer - offers an opportunity for substantially greater earnings. The work requires a combination of talent, showmanship, technical knowledge and a creative flair.

Music Specialist, Sportscaster, Farm Editor - all must have the aptitudes mentioned under Staff Announcer, plus, of course, a thorough knowledge of his speciality.

News Director - guides the over-all news policy of the station, supervises newsmen and also serves as working newsman.

Newsman - serves as a reporter, selecting stories from the wire services, editing and rewriting them for the local audience. He is also a performer who delivers the news on the air. He should have news sense, a knowledge of what is important and interesting and where to find it. Most stations seek newsmen with college degrees in broadcasting or in journalism.

Director or Producer-Director - work involves the planning, rehearsal and direction of the on-the-air presentation.

Music Librarian - catalogues and stores the records and often selects the music for shows. The most important requirement for this job is a broad-guage knowledge of music.

Continuity Writer - writes commercial announcements which will sell the sponsor's products and services, writes public service and station promotional announcements and occasionally creates program material. Must be able to write persuasive copy.

Sales Manager - combines selling with management. He is responsible for setting the general sales policy of the station as well as for supervising the daily activities of his salesmen.

Salesman - sells radio time in the form of programs, portions of programs or commercial announcements, to advertisers or their advertising agencies. He must be conversant with the station's program schedule and with its time availabilities. He often writes commercial copy tailored to the particular sponsor's need. He maintains contact with sponsors and services their accounts by handling changes in schedules, rotation of copy, special sales campaigns, etc.

Traffic Manager - prepares the daily logs of the station's program activity, using information collected from the sales, programming, and engineering departments, as well as from the station's national sales representative and its network, if the station is a network affiliate.

Chief Engineer - may supervise the activities of a dozen technicians. He may also be the only engineer on the staff. He may work on the control board or at the transmitter. He is a fully qualified engineer with an FCC First Class Radiotelephone Operator's license.

Recording (singing, commercials)

Secretarial

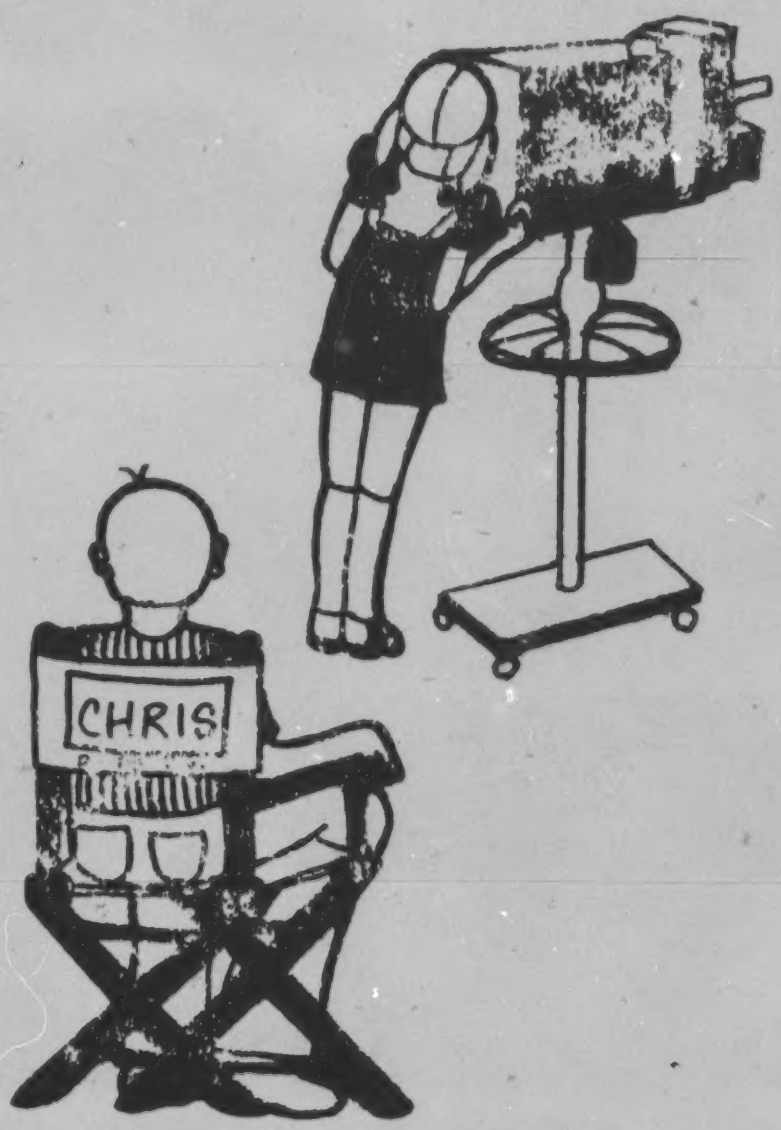
Reporter

Disc Jockey

Publicity man

PBX - Switchboard operator

Radio/ T.V./ Film



Student Study Sheet
(One Per Student)

Types of Radio Programs

A. Limited equipment

1. Radio talks and speeches
2. Readings and storytelling
3. Newscasts and announcements
4. Comedy routine (one person)
5. Comedy program (two persons)
6. Interview: man-on-the-street
7. Commentary
8. Book review
9. Simple quiz program
10. Sportscast
11. Special event: on-the-spot commentary
12. Disc-jockey program
13. Music: solo instrumental-piano, violin, flute, etc.; solo vocal
14. Poetry program: lecture-recital type
15. Round table: three people
16. Variety - with individual numbers

B. More extensive equipment
All of the above are possible, plus these as suggestions:

1. Dramatic shows
2. Chorus: vocal music; quartets-instrumental or vocal
3. Orchestra or string ensemble
4. Dramatizations and adaptations of short, stories, novels, Bible stories, fairy tales, sports stories, adventure
5. Children's programs
6. Women's programs: demonstration or commentator-styles, food, household
7. Agricultural programs
8. Special-occasion shows
9. Public-service shows; community, school
10. Town meeting of the Air; larger round tables
11. Audience particapation shows
12. More elaborate quiz programs
13. Assembly programs
14. Serials and continued dramatized shows

figure 1

Student Study Sheet
(One Per Student)

Basic Radio Instructional Materials and Equipment

Tape Recorders (Cassette or Reel-to-Reel)

Record Players

Microphones

Records (from anywhere)

Newspapers

Wire Copy

Radio Code Book

Dictionary

figure 2

Student Study Sheet
(One Per Student)

Media Survey Sheet

Person Responding _____

Address _____

1. Where do you get most of your news?

   Newspaper
   Television
   Radio
   Magazine
   People I Talk To
   Don't Know
   No Answer

2. Which medium is more believable.
   "If you get conflicting stories from radio, TV magazines, or newspaper, which would you be most inclined to believe?"

   Newspaper
   Television
   Radio
   Magazine
   Don't Know
   No Answer

3. If you could only have one of these which would you want to keep?

   Newspaper
   Television
   Radio
   Magazine
   Don't Know
   No Answer

4. If the government decided to control the news, which medium do you think they would be most justified in controlling?

   Newspaper
   Television
   Radio
   Magazine
   Don't Know
   No Answer

figure 3

Things to Know in Radio Broadcasting

I. When you meet the microphone

A. radio actors tools-intelligence-voice-speech

B. delivery of lines

1. voice-sound natural; avoid extremes-too loud or soft, use contrast, pauses, variation
2. speech-enuciate distinctly; avoid explosive s and p sounds - rela

II. Sound affects

A. in play it helps it come alive

B. rules to follow

1. when possible, use real object
2. use recordings
3. carefully rehearsed and timed
4. use only when really necessary

III. Music

A. used to indicate mood

B. select music proper to time, locale, and mood

C. use music that your audience will not readily recognize

IV. Directing

A. Coordinator

B. maintain harmony between departments without conflict

C. guide crew

D. in any disputes you have final say

figure 4

105

Radio Activities #1

News Program #1

Objective: Create a newscast (news, sports, weather, etc.) from a daily newspaper.

A. Select the stories to be used and cut them out.

B. Arrange them in the order to be presented.

C. Edit each story by selecting the facts and quotes to be used and discard the rest.

D. If necessary, change phrasing to suit radio announcing.

E. Find the correct pronunciations for any words the announcer questions.

F. Proofread.

G. Tape record or present to the class.

H. Evaluate critically and as a public audience (i.e., errors and then appeal of material and delivery style).

Radio Activities #2

News Program #2

Objective: Given only the essential facts, create a newscast (news, sports, etc.).

Teacher will make a list of the facts about a murder, auto accident, robbery, fire, etc.

A. Select those facts to be used in the story.

B. Construct an introduction designed to get the listener's attention.

C. Write the news story keeping in mind that simplicity of language and non-editorializing are the two most important factors.

D. Tape record or present orally.

E. Evaluation.

Radio Activities #3

News Program #3

Objective: Create a newscast by selecting and editing wire copy (UPI or AP) releases.

Teacher may obtain old wirecopy by contacting a local station or newspaper.

A. Select the stories to be used and cut them out.

B. Arrange them in the order to be presented.

C. Edit each story.

D. Write "lead-in" for each story or group of stories (i.e., national news, local news, sports, human interest, etc.)

E. Locate correct pronunciations.

F. Proofread.

G. Record or read orally.

H. Evaluate.

Radio Activities #4

News Program #4

Objective: Create a news program by selecting information from the newspaper, list of facts, wirecopy and first-hand reporting.

A. Use the techniques set down in activities one, two and three.

Radio Activities #5

Writing a Commercial

Objective: Taking a real or fictional product or commodity write a ten, thirty or sixty second radio commercial. Include music and sound effects if desired.

A. Select the item to be advertised.

B. Find out as much as possible about the product.

C. Determine who the consumer is likely to be (age, sex, desires, activities, etc.)

D. Study various propaganda devices.

E. Determine appropriate selling approach.

F. Write the commercial. (See supplements on commercials)

G. Tape the commercial adding music and sound effects.

108

Student Study Sheet
(One Per Student)

ANNOUNCEMENTS AND COMMERCIALS

Many copywriters use a word count scale to determine the number of words that will go into a given time segment of a radio announcement or commercial but, at best, such word counts are approximate. The length of individual words, the complexity of the ideas, the need for emphasis through pause and variation in rate, and the personality of the performer delivery the announcement are some of the factors which may affect the number of words that may be spoken effectively in a given length of time. Some generalizations may be made, however. The 10-second ID will contain about 25 words; the 20-second announcement, about 45 words; the 30-second announcement, about 65 words; the 45-second announcement, about 100 words; the one-minute announcement, about 125 words; the minute and one-half announcement, about 190 words; and the two-minute announcement, about 250 words. These word counts cannot be applied to television, except in the instance of a continuous spoken announcement, because the visual action in television may be expected to take up a portion of the time without dialogue or verbal narration.

ANNOUNCEMENTS

Spot announcements may be commercial or non-commercial materials. Programs do not end at the "minute" mark. Actual time lengths taken by networks and stations vary for, as it is called, the station break. The 1965 NAB Codes specify up to 130 seconds per break, not exceeding 16 minutes and 20 seconds total commercial time per hour for television; and no specified station break limits, with a maximum of 18 minutes of commercial time for a single hour on radio. Spot announcements may be, therefore, of varying lengths. The station break announcement may be a station identification; a public service announcement concerning almost any civic matter, such as keeping the streets clean; a news flash; a service announcement, such as a weather report attached to a commercial message; a station "cross-plug" for one of its upcoming programs; or, of great importance to a profit-minded industry, a straight commercial message. Spot announcements of the same type, excepting the station identification, sometimes are inserted into a break in a given program, no matter at what time that break occurs. Let us look first at the non-commercial spot announcement.

Student Study Sheet
(One Per Student)

Principles of Copywriting for Commercial Radio

1. Get facts -- try it yourself.

2. Create a copy policy or follow given copy policy. A copy policy is information about the product.

3. Limit ideas to one thought, if possible. Two at the most!

4. Back up main ideas with 3 or 4 good selling points or appeals.

5. Put across name of product or sponsor's name and his location -- sprinkle through commercial.

6. Select words and phrases for sound value. Work for cadence (rhythm) alliteration, word patterns.

7. Read commercials aloud just as if you were going to announce them yourself.

8. Write for one listener. Use the "you" attitude -- use the preposition you, not we. We is too friendly ... and too general.

9. Clarify all statements: If you think the audience won't comprehend it, rewrite it or repeat it in everyday language.

10. Utilize repetition -- "taste that beats the others cold".

11. Use fragment sentences if they convey the thought. "Fast" "Dependable" "Accurate".

12. Don't use trite, stereo-type sentences, or phrases.

13. Be natural. Keep conversational.

14. Respect listeners feelings.

15. Write commercials to fit in with the program.

16. Write for announcer.

17. Strive for the unusual, but avoid excessive cleverness.

18. Avoid hyphenating the last word of a line because the announcer may not pronounce that word clearly. "Is that statement clear?"

19. Keep copy on one page.

20. Don't use all caps.

Student Study Sheet
(One Per Student)

I. Writing Commercials for Television and Radio.

A. Commercial copy writing technique and style.
B. Before writing commercials -

1. Writer must know objectives of the advertising campaign.
2. Must secure information on product, the market, and consumer.

II. Fundamentals of Television and Radio Copy Writing.

A. It must be truthful, and reasonable in its implications.
B. It must be believable.
C. It must not unfairly disparage competitions.
D. Should be simple so the audience will remember.
E. The product attributes must be important to the advertising influences.

III. Guideposts to Successful Television and Radio Copy Writing.

A. Get the facts.
B. Follow or prepare a copy policy.
C. Determine the theme idea.
D. Stress one major selling idea.
E. Register the brand name strongly.
F. Write for the individual viewer or listener.
G. Utilize repetition.
H. Be specific.
I. Maintain interest throughout the commercial.
J. Be aware of the cost factors.
K. Create the proper commercial tone.
L. Be natural.
M. Ask for action at the end of the commercial.
N. Write the rewrite.

IV. Special Guideposts for Television Commercials Copy Writing.

A. Devise a visual interpretation of the main idea in the plot command.
B. Plot the audio and video simaltaneously.
C. Sell the product as soon as possible.
D. Work closely with the artists, the producer, and the print copy writer.
E. Visualize and talk about the same thing at the same time.
F. Utilize identical wording in the audio.
G. Don't oversell.
H. Know the difference between creating live or taped commercials.

V. Special Guideposts for Radio Commercials Copy Writing.

A. Strive for distinction.
B. Be aware of the conditions under which the commercial will be heard.
C. Be aware of the time of day the commercial will be heard.
D. Select words, phrases, and effects for their sound.
E. Use fragmentary sentences where appropriate.
F. Work for attention.
G. Consider radio personalities.
H. Weigh the pro's and con's of live versus transcribed announcements.

Radio Activities #6

Radio Interview

Objective: Prepare an interview with two class members. This can be about a hobby, special interest or it could be a role playing situation. In role playing, it is implied that some research is done about the personality or career to be interviewed.

A. Set up the format for the interview.

B. Interviewee should prepare by self-education or compiling information.

C. Interviewer should establish some basic questions and do some research on the character to be interviewed.

D. Title the show.

E. Interviewer should prepare an introduction for the program.

F. Tape or present orally.

G. Study supplement on interviews.

Student Study Sheet
(One Per Student)

Points to Remember about Interviews (Radio)

Interviewer

1. Remember that the audience cannot see your guest and that frequent references to this person by name and occassional mention of his background will assist those who tune in late.

2. Relax and help your guest relax (especially if he is not used to broadcasting).

3. Be a good listener and don't rely on a list of prepared questions. (Listen closely to the interviewees answers)

4. Ask questions the interviewee would like to answer rather than putting him on the spot.

5. Consider yourself a member of the average listener. Don't act like you are an authority on the subject.

6. If all else fails, remember the 5 W's and H - Who, What, Why, When, Where, and How.

Interviewee

1. Your preparation for the interview should be complete. Know the topic and/or background information you may be questioned about.

2. If statistics or quotes are essential then have them written out and ready. Other than this a minimum of notes will prove to be better.

3. Don't leave out important points. You have as much opportunity to steer the discussion as the interviewer so failure to bring out things you want to discuss are as much your fault as his.

4. Relax and speak conversationally.

BOTH MEMBERS ARE RESPONSIBLE FOR COMPLETE AND SPONTANEOUS INTERACTION. DON'T EXPECT THE "OTHER GUY" TO CARRY YOU. NEVER ASSUME THAT THE MICROPHONES ARE OFF UNTIL SOMEONE IN AUTHORITY NOTIFIES YOU THAT SUCH IS THE CASE.

Radio Activities #7

Production of Sound Effects

Objective: Create tape recorded sound effects using simple everyday materials to construct the audio illusion. This could be done on a class basis or a total school basis, such as a contest, having students identify sound.

A. Listen to sounds around you and think of what else makes a similar sound.

B. Bring the simple materials to class.

C. Tape the sound effects

D. Have the class listen and write down what the sound conveys to them. (Discovery of other uses will be the end result.)

E. Discuss ways of changing or improving the sound. See supplement on sound effects.

114

Student Study Sheet
(One Per Student)

How to Make Sound Effects

Basic wave sound	14 to 16 inch balloon with 50 BB shot inside. Shake the balloon for waves crashing -- twist or swirl it for surf.
Splashing water Lapping water	Use real water poured from pail into bathtub--splash in bathtub.
Rain	Try sugar poured in a trough of wax paper.
Fire	Crumple cellophane paper -- the louder the crumple, the more crackly the fire.
Horses hooves	Halves of coconut shells pounded in rhythm--on a table for pavement, on a rug for earth.
Airplane	Paper pushed into an electric fan.

115

Radio Activities #8

Poetry Reading Set to Music

Objective: The student will practice oral expression.

A. Select a poem.

B. Obtain an appropriate tape or record to use as background.

C. Consider addition of sound effects.

D. Tape final product.

E. Class critique.

Radio Activities #9

Radio "Spots"

Objective: The student will create and produce a short public interest spot.

A. Brainstorm ideas for 1-2 minute original spots (such as Bicennential Minutes, Iowa Historical Moments, humor, trivia, or other informative public service material.)

B. Write script. Add sound effects and music.

C. Rehearse. Time exactly using stop watch.

D. Tape final product.

E. Class critique.

Radio Activities #10

Disc Jockey Patter

Objective: The student will write ten different introductions to the same record.

A. Select record and gather information available.

B. Write out ten different ways to introduce it taking into consideration length of time, avoiding repetition and monotony.

C. Tape different introductions in succession.

D. Class critique.

Radio Activities #11

Sportscast

Objective: Viewing a live sports event, tape record play-by-play and color commentary on the event.

A. Select an event happening within the community or tape a telecast event turning down the volume.

B. Research the participants and statistical matter relating to the event.

C. Listen to a live broadcast of a similar event to use as a guide.

D. Prepare material and mock interviews for the broadcast.

E. View the event and record the play-by-play as it progresses.

F. Listen to the tape and evaluate.

Optional

G. Use several people to perform the different functions 1) announcing play-by-play 2) spotting the players 3) color announcing - additional information and human interest stories about the contestants and 4) recorder operator.

Note: Football and baseball will be relatively easy sports to broadcast as they have longer periods of "break" between action. Basketball, on the other hand, has fast action and few breaks making it more difficult for the novice announcer.

Radio Activities #12

Developing a Radio Station

Objective: Set up a real or mock radio station in the school. This could be done with the use of the school public address system or tape recorder.

A. Select a four initial title for the station.

B. Assign or elect position (careers) for each member of the class or group: 1. Program director 2. Music personnel 3. News director 4. Salesmen 5. Secretaries 6. Reporters 7. Disc jockies 8. Publicity crew 9. Announcers 10. Writers and 11. Others.

C. Determine the purpose and policies of the station.

D. Set up time schedules for air time.

E. Develop advertising, for the station, to put on the air (jingles) and posters and flyers to distribute in the school.

F. Create introductions for the shows and commercials.

G. Sell or simulate selling air time to interested groups. These could be actual school organizations or mock-up businesses in the classroom.

H. Create public service (ecology, safety, human rights, health, education, etc.) announcements.

I. Create some human interest programs such as interviews and documentaries.

J. "Technicians" should set up the studio.

K. Begin airing.

Student Study Sheet
(One Per Student)

Television

Television, like radio, provides careers that vary in scope from station to station. With some stations, a few people may be doing several things while at another, a larger staff may specialize to a greater extent. The impact of the networks also implies more specialization and more opportunities in the technical, performing and management areas. Following is a list of possible career selections in the television field. Remember that more than one of these functions may be performed by one person at a given station.

The following careers are basically the same in both the Radio and Television fields. Refer to the career descriptions in the Radio section for the following occupations:

Traffic Manager

Engineer

Salesman

Program Director

Staff Announcer

Special Program Performer

News Director

Newsman

Continuity Writer

Production Manager - determines personnel, space and equipment requirements, supervises studio activities, secure stage properties, and performs dozens of other tasks associated with production.

Producer - Director - plans and supervises the production of a program or series of programs. He directs the performers, studio technicians and production workers who are under his supervision for the particular show. He co-ordinates the various elements of the program, including the selection of film, scripts, and music, and maintains budgetary controls.

Film Director - handles the screening and preparation of all film used on the station and often participates in buying decisions.

Film Editor - cut, splice and clean film under supervision.

Film or Still Cameraman - covers the news.

Floor Manager - directs the performers on the studio floor in accordance with the director's instructions, relaying stage directions and cues.

Flogman - works on the studio floor arranging sets and backdrops, lighting and handling the various movable properties which are used in the show.

Graphic Artist - plans set designs, constructs scenery, paints backdrops and handles lettering and art work.

Makeup Artist

Costumer

Dramatic Actor

Promotion Manager - secures publicity for the station, its programs and its talent. The work typically involves the planning and layout of advertising campaigns and promotional activities directed at the station's audience. He may also handle sales promotions which include the planning and layout of advertising for trade journals.

Audio Personnel

Lighting

Film Editor

Basic Television Instructional Materials and Equipment

Video Tape Machine

Tape Recorders

Record Players

Easel

Oak Tag

Magic Markers

Newspapers

Simple Cameras

Magazines (illustrations) or Picture File

Slide Projector

Movie Projector (optional)

Flood Lights and Others

Student Study Sheet
(One Per Student)

A. Background and History of Television

1. Innovations prior to the image orthicon were:

   a. The invention of the scanning disc by Paul Nipkow, German-1884

   b. The iconoscope by Dr. V. K. Zworykin, American-1923

2. Television through 1948

   a. Moved out of the laboratory and into the practical stage.

   b. Broadcast the New York World's Fair and an address by President Roosevelt - 1939

   c. Was authorized by the FCC for full commercial usage on the black and white 525 line basis - 1941.

      (1) there were only six stations on the air.

      (2) there were only 4,700 sets in the New York area.

3. The "Freeze" of 1948-52

   a. Had two purposes:

      (1) develop a frequency allocation plan.

      (2) develop a policy for color TV.

   b. Typical programs were:

      (1) "Similcasts" (adding a TV camera to a radio show) of radio, wrestling, rollerskating, etc.

      (2) The first major TV variety program was Milton Berle.

   c. Was a loss venture to the station.

   d. Created UHF channels 14-83 as well as VHF channels 2-13.

4. Major factors in the growth of television were:

   a. CBS system approved by FCC in 1950. This system not compatable i.e., it could receive only color broadcasts or only black and white, hence 2 sets were necessary.

   b. 1953 - FCC issued new color rules making compatability required. This was the result of lobbying by RCA and its subsidiary NBC. RCA controlled patent rights to color until the 1960's.

   c. Three major networks were broadcasting color in 1962.

121

5. 1962 - All sets were required to carry VHF and UHF channel selectors. Some UHF stations were being bankrupted because no one could receive them.

6. The first earth-satellite broadcast occured in 1962.

B. Contemporary Developments and Utilizations of Broadcasting

1. Radio's changes because of TV were:

   a. FM with multiplex and stereocasting.

   b. Portability and transistorizing of receivers.

   c. Mobile transmitting units utilizing telephone lines.

2. Utilizations of radio are:

   a. Educational broadcasting of radio and television.

   b. "Ham" or shortwave operations.

   c. Citizens band (low frequency and power radio for business and pleasure).

   d. Police, fire, and other public service protection.

   e. Emergency Broadcasting System.

3. Utilizations of television are:

   a. Educational TV via:

      (1) Network of educational stations with programs geared to classroom supplement.

      (2) Closed circuits in schools.

   b. Closed circuit as in:

      (1) Industry (guarding, inspecting).

      (2) Sports

      (3) Traffic control

      (4) Fund raising

      (5) Medical demonstrations

      (6) Business conventions

   c. Subscription ("pay-as-you-go" or "toll").

d. Space exploration (photography).

e. Instant replay through refinement of the video-tape recorder
Examples: sports, drama.

C. Radio and Television Affect Our Social Behavior:

1. Broadcasting influences our actions through:

a. Advertising

(1) Tobacco and alcoholic beverages can be made to look attractive in spite of the health hazards. Examples: "Winston tastes good" "Live life with gusto-Schlitz"

(2) The buying habits of the public are affected as a result of advertisers appeals to young people. Example: "Pepsi generation"

(3) Morals are affected through deliberate sexual appeals built in as gimmicks, such as "Sex appeal" toothpaste.

(4) The use of humor has been a welcome change. Examples: "No matter what shape your stomachs in", "trials of Benson and Hedges"

b. Programming

(1) Language patterns are established among youngsters through examples exhibited on programs designed for children.

(2) Habits are determined through examples set for the audience such as morals.

(3) The teenager plays an impressive role in determining policy and programming. Many of the ABC shows such as "Batman", "Mod Squad", "The New People" are evidence of this.

(4) News commentaries often determine public sentiment on political issues. Consider the Spiro Agnew speech in Des Moines, NBC'S "Black in America", CBS's "Hunger in America".

2. Broadcastings greatest impact was achieved through:

a. Information as a social force.

(1) Newscasts of World War II, Korea, and Vietnam were dramatically illustrated.

(2) Public Service Announcements in time of distress.

(3) Special events - man on the moon, etc.

(4) The martydom of John and Robert Kennedy through extensive coverage of their assinations and funerals.

b. Persuasion as aimed at inducing mass social activity.

(1) Charles E. Coughlin opposed the Executive Reorganization Bill of 1938.

(2) CBS's "Hunger in America".

(3) The environment issue and programs related to it.

c. Politics, especially the 1968 Democratic Convention and the Nixon-Kennedy debates.

d. Appeal to emotions and imagination, as in:

(1) Kate Smith's 1944 war bond drive.

(2) H. G. Wells' "War of the Worlds" in 1938.

(3) Milton Berle's 1955 Damon Runyon Fund

(4) Roberta Albert Fund

e. Improvement of cultural standards:

(1) The standardization and simplification of the English language.

(2) More universal dissemination of current events.

(3) Greater exposure to music and drama.

124

The following material was reproduced from the Communication and Media material developed by Oklahoma State Board of Vocational and Technical Education.

TELEVISION

Using the Video Tape Recorder in the Classroom

Unit Objective

After completion of this unit, the student should be able to identify the parts of a video tape camera and discuss the controls and connectors of a video tape recorder and jobs and related job opportunities. The student should demonstrate this ability by performing eight-five percent of the exploratory activities.

Specific Objectives

After completion of this unit, the student should be able to:

1. Discuss orally the controls and connectors of a video tape recorder.

2. Identify eight parts or controls on a video tape camera.

3. List three types of lighting used in a television studio.

4. Select from a list two microphones used in television.

5. Match jobs related to television to the responsibilities of each.

6. Discuss orally employment opportunities for jobs related to television.

7. Discuss orally or in writing the preparation and training for jobs related to television.

8. Discuss orally the employment outlook and advancement possibilities for jobs related to television.

9. Match jobs related to television to the working conditions of each.

10. Demonstrate the ability to:

    a. Role play a news broadcast.

    b. Connect and operate a video tape camera and recorder.

TELEVISION

Unit 1

Suggested Activities

I. Instructor:

A. Provide students with objective sheet.

B. Provide students with information, assignment, and job sheets.

C. Make transparencies.

D. Have newspapers available for use with assignment sheet.

E. Discuss unit and specific objectives.

F. Discuss information and assignment sheets.

G. Demonstrate and discuss procedures outlined on the job sheet.

H. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete assignment sheet.

D. Demonstrate the ability to accomplish the procedures outlined on the job sheet.

E. Take test.

Instructional Materials

I. Included in the unit:

A. Objectives

B. Information Sheet

C. Transparency masters

1. 111m-Controls and Connectors

2. 111n-Controls and Connectors

3. 111o-Controls on a Video Tape Camera

4. 111p- Types of Lighting

5. 111q-Microphones Used in Television

D. Assignment Sheet #1-Role Play a News Broadcast.

E. Job Sheet #1-Connect and Operate a Video Tape Camera and Recorder

F. Test

G. Answers to test.

II. References:

A. Filliard, Robert L. Understanding Television, New York: Hasting House, 1964.

B. Lewis. Bruce. The Technique of Television Announcing. New York: Hasting House, 1966.

C. Sony. Videocorder Ready Reference. Obtain from local Sony dealer.

D. U.S. Department of Labor. Occupational Outlook Handbook. Washington, D.C.: Government Printing Office, 1972-73.

Student Study Sheet
(One per student)

TELEVISION

Unit 1

1. Controls and connectors of video tape recorder (Transparencies 111m and 111n)

   A. Supply reel spindle

   (NOTE: A full reel of tape is placed on this spindle.)

   B. Tension arm--Regulates tape tension to provide an intimate contact between tape and video heads.

   C. Erase head--Erases previous recordings as the tape passes over it.

   D. SKEW control--Controls the tape tension

   (NOTE: Turn the knob in the playback mode only when the upper position of the playback picture is distorted.)

   E. TRACKING control--Regulates the tracking of the video heads.

   (NOTE: If the playback picture is distorted due to deformation of the tape, turn the knob to achieve optimum picture stability. This knob does not function in the record mode.)

   F. Rotary video heads--Record or play back video signals.

   G. Audio/control head--Records and plays back servo control and audio signals.

   H. Tape counter and reset button--Tape counter indicates the amount of tape used in either record or playback; reset button is pushed to set the figures on the tape counter to "000"

   I. RECORD button--Records when pressed

   (NOTE: When the video recorder is in the record mode, the light above the button will come on. While holding the button down, turn the function selector to FORWARD. The tape will move and the recording will begin.)

   J. Take-up reel spindle

   (NOTE: An empty reel is placed on this spindle.)

K. CAMERA/LINE/TV selector

1. CAMERA position--Records pictures supplied by the video camera connected to the CAMERA connector

2. LINE position--Records pictures supplied by the video camera, the video monitor, and other video equipment connected to the VIDEO IN connector

3. TV position--Records on-the-air TV programs

L. Function selector

1. FAST FORWARD position--Advances the tape quickly

2. PAUSE position--Stops tape motion momentarily

(NOTE: The RECORD and AUDIO DUB buttons are not released in the PAUSE position.)

3. FORWARD position--Moves the tape at normal speed for record or playback mode

4. STOP position--Stops tape motion

5. REWIND position--Rewinds the tape

M. Automatic shut-off switch--Turns off the power automatically when the tape runs out or breaks

(NOTE: If the function selector is set to the FORWARD or REWIND position without the tape being threaded, the power will be shut off automatically.)

N. AUDIO LEVEL meter--Indicates the audio recording level during manual recording and playback audio signal level in the playback mode; does not function in the automatic recording mode.

O. Pilot lamp--Lights when the POWER switch is pressed, indicating the video recorder is on

P. POWER switch--Turns the video recorder on or off

Q. AUDIO LEVEL control--Turns to adjust the audio recording level manually while watching the AUDIO LEVEL meter; has no control over the playback signal

R. AGC/MANUAL button

(NOTE: Button is usually set in the upper position. Push down on the knob when adjusting the audio level manually.)

S. AUDIO DUB button--Adds sound to prerecorded pictures during playback

T. CAMERA connector--Connects to a video camera

U. VIDEO IN connector--Connects to a video camera or a TV set equipped with a UHF-type coaxial video output receptacle

V. VIDEO OUT connector--Connects to a video monitor having an input impedance of 75 ohms with the use of a 75-ohm coaxial cable

W. RF unit compartment

(NOTE: The RF unit is inserted in this compartment. The RF unit is supplied for viewing the playback picture through an ordinary TV set.)

X. RF OUT jack--Connects to an antenna selector suppplied with the RF unit for playback through a conventional TV receiver

Y. TV connector--Accepts any video monitor

(NOTE: All video and audio interconnections to the monitor are made at this connector.)

Z. MIC IN jack--Used to connect the microphone supplied with the video camera kit or any high-quality, low-impedance dynamic microphone.

AA. AUX IN jack--Allows connection of an alternative sound source, such as a phonograph, tuner, tape recorder, or other microphone/amplifier system.

BB. LINE OUT jack--Permits audio connections to an external hi-fi system or high-impedance crystal earphone

CC. FUSE holder--Accepts a 1.5-ampere cartridge fuse

(NOTE: Do not use a fuse with a higher rating.)

DD. AC IN receptacle--Used to make connection to a 115-120 volt, 60-Hz AC power outlet using the AC power cord supplied with the video recorder

EE. AC OUT receptacle--Provides AC power to the video recorder components such as a monitor or video camera

(NOTE: Maximum rating of these outlets is a total of 500 watts.)

II. Parts or controls on a video tape camera (Transparency 111o)

A. Video/RF output

B. VTR connector

C. Pilot lamp

D. Video/RF switch

E. Sync selector

F. AC power cord

G. Power switch

H. Contrast control

I. Brightness control

J. Vertical hold control

K. Viewfinder connector

L. Tripod receptacle

M. Horizontal hold control

N. Focus ring

O. Lens opening ring

P. Zoom ring

III. Types of lighting used in a television studio

A. Spotlight (Transparency 111p)

B. Pattern spotlight (Transparency 111p)

C. Scoop or floodlight (Transparency 111p)

D. Lighting grid

IV. Microphones used in television (Transparency 111q)

A. Boom microphone--Places microphone over the action

B. Highly directional microphone--Used to pick up football signals

C. Lavalier dynamic microphone--Comes in various sizes and can be hidden beneath the clothing easily

V. Responsibilities of jobs related to television

A. Television announcer

1. Presents news, weather, or sports

2. Presents commercials

3. May have additional duties of operating control board, selling time, and writing commercials

B. Programing director

1. Responsible for overall program schedule

2. Keeps in mind both advertisers' wishes and community's needs

C. Producer

1. Selects scripts

2. Controls finances

3. Supervises overall problems of production

D. Broadcast technician

1. Sets up electronic equipment

2. Operates electronic equipment

3. Maintains electronic equipment

VI. Employment opportunities of jobs related to television

A. Television announcer

1. Local television stations

2. National broadcasting networks

B. Programing director

1. Local television stations

2. National broadcasting networks

C. Producer

1. Local television stations

2. National broadcasting networks

D. Broadcast technician

1. Local television stations

2. National broadcasting networks

VII. Preparation and training for jobs related to television

A. Television announcer

1. Excellent pronunciation

2. Well-rounded education

3. High standard of personal appearance

4. English and speech courses are an asset

B. Programing director

1. Background in electronics

2. Minimum of a high school education

3. Often a background in sales helps to transfer from sales to programing

C. Producer

1. Minimum of high school education

2. Classes in business management are helpful

3. Overall background of television set operations

D. Broadcast technician

1. Must obtain a radio-telephone first class operator's license from FCC

2. High school courses in algebra and trigonomety are valuable

3. Technical and college level training is a distinct advantage

VIII. Employment outlook and advancement possibilities for jobs related to television

A. Television announcers

1. Employment outlook--increase moderately

2. Advancement possibilities--Good but extremely competitive

B. Programing director

1. Employment outlook--Good

2. Advancement possibilities--Good

C. Producer

1. Employment outlook--Good

2. Advancement possibilities--Good

D. Broadcast technician

1. Employment outlook--Increase slightly

2. Advancement possibilities--Good

IX. Working conditions for jobs related to television

A. Television announcer

1. Most work forty hours per week

2. May work as many as eight hours overtime per week in small stations

3. Variety of work

4. Usually very pleasant conditions

5. May be union

B. Programing director

1. Forty hour week

2. Works under great pressure to meet deadlines

3. Generally works inside in pleasant surroundings

C. Producer

1. Forty hour week

2. Works under great pressure to meet deadlines

3. Generally works inside in pleasant surroundings

D. Broadcast technician

1. Forty hour week with overtime pay

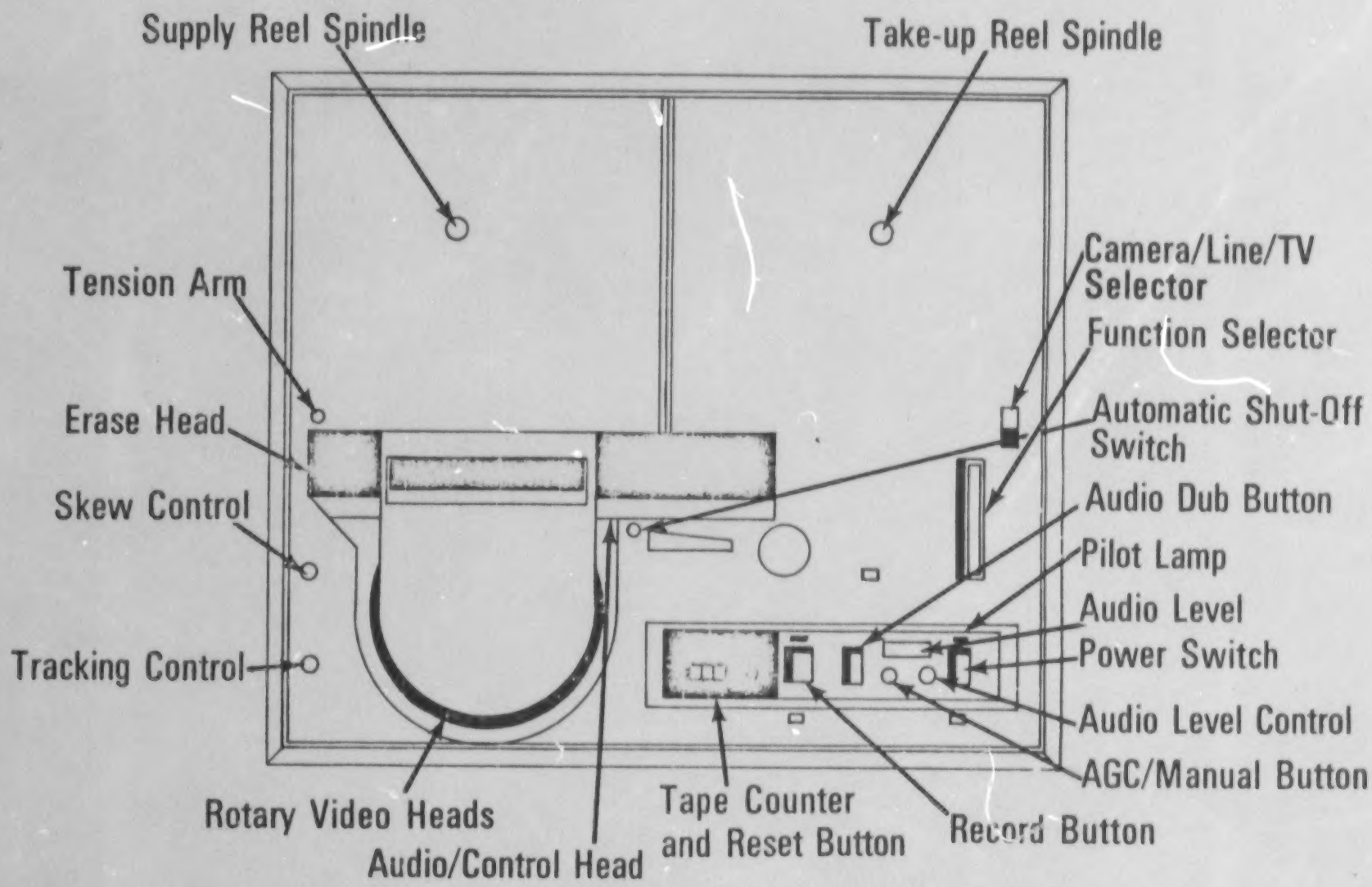
2. May have to work long hours and under great pressure to meet deadlines

3. Generally works inside in pleasant surroundings

4. May be union

Transparency

Controls and Connectors



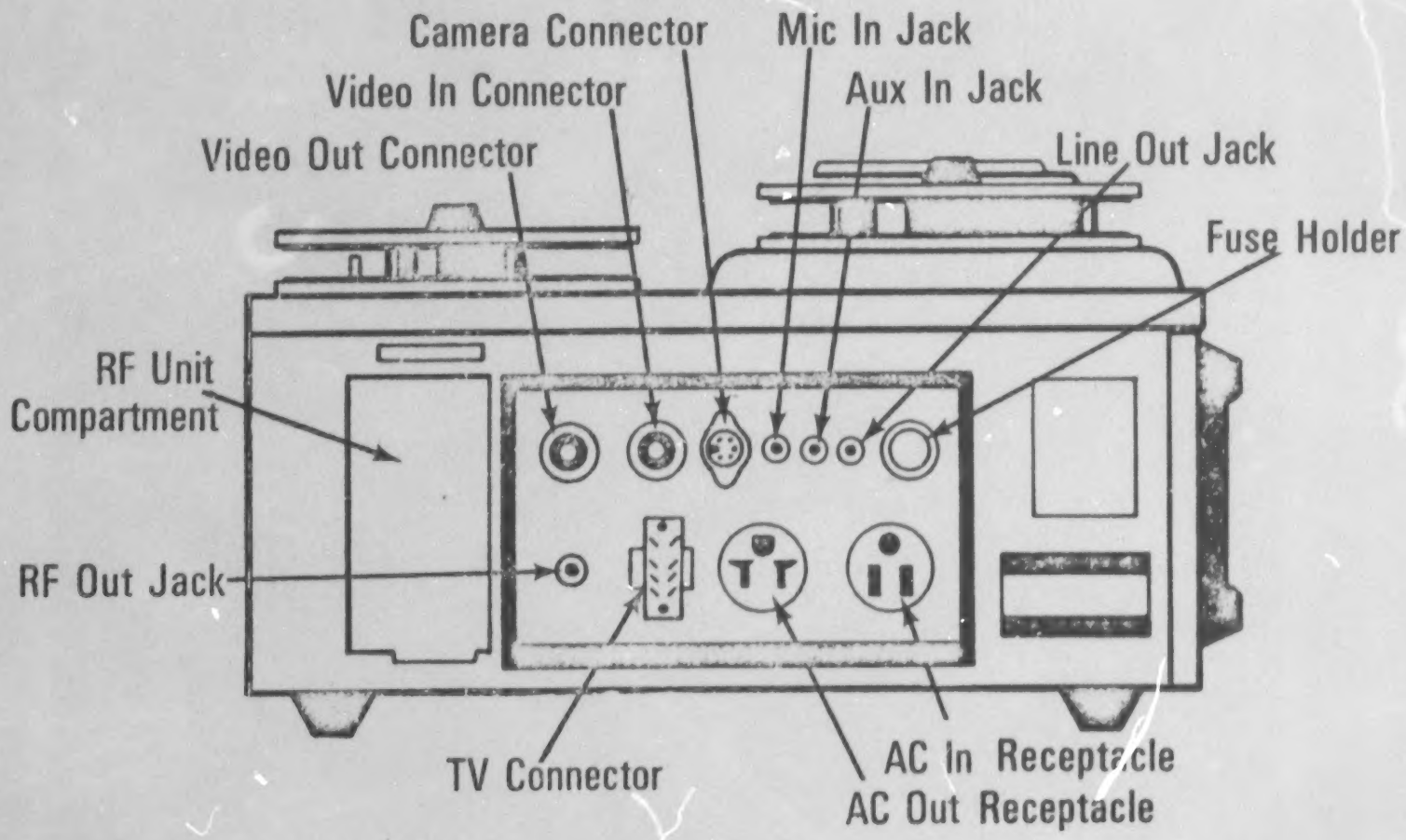
111m

131

Transparency

Controls and Connectors

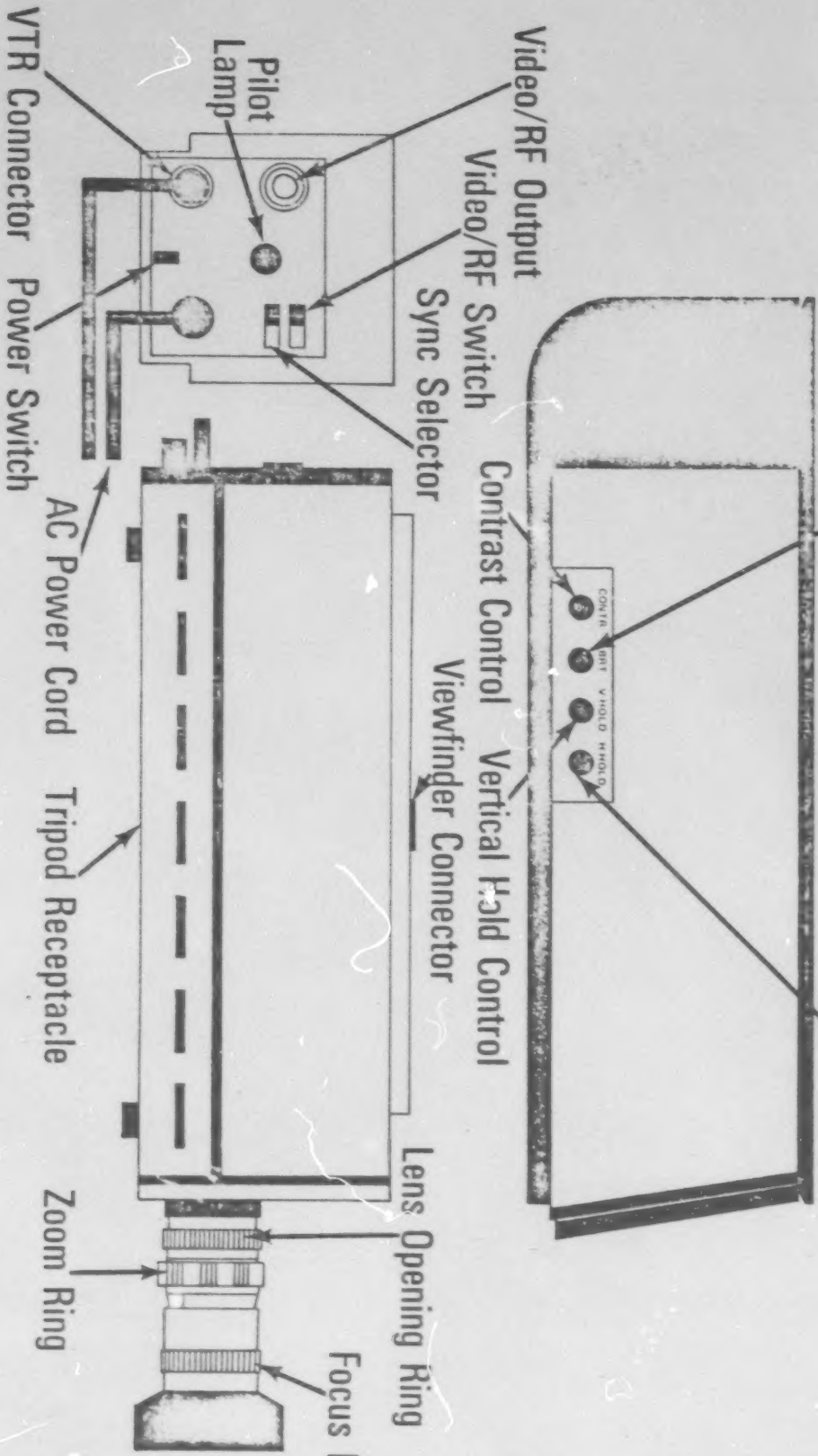
(Continued)

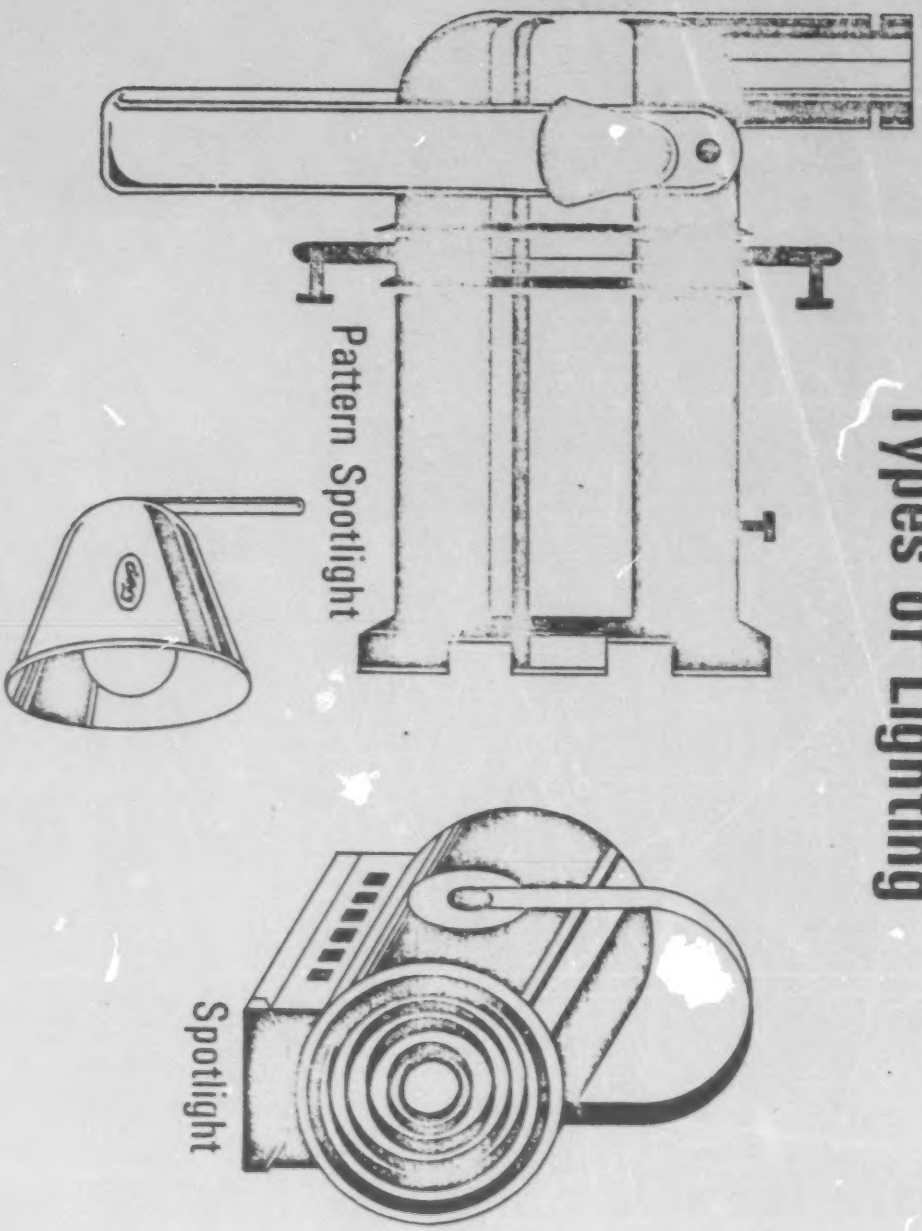


11In

138

Controls on a Video Tape Camera

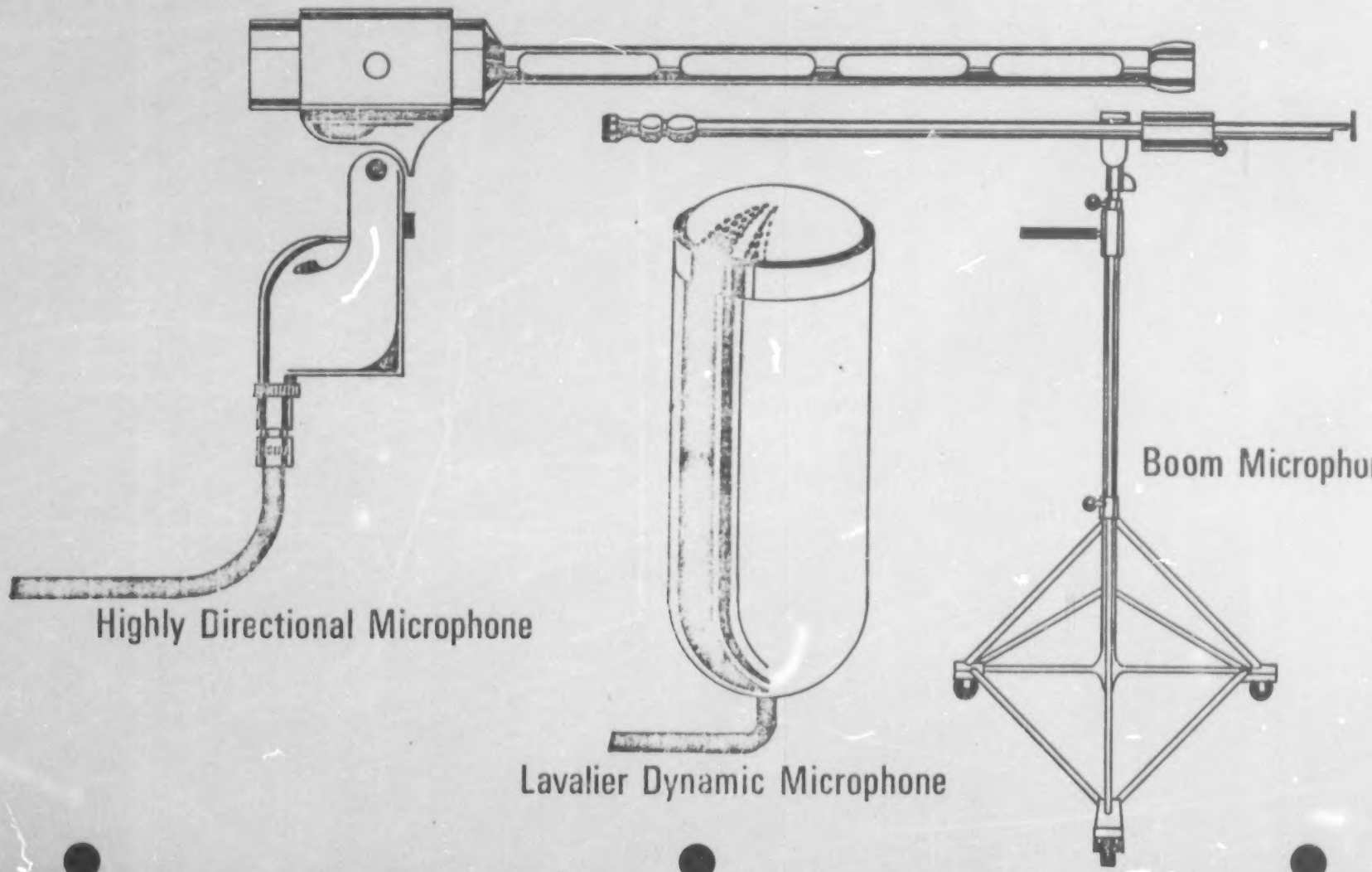



Types of Lighting
Pattern Spotlight
Scoop or Floodlight
Spotlight

140

Transparency

Microphones Used in Television



TELEVISION

Unit 1

Assignment Sheet #1 - Role Play a News Broadcast

1. General instructions

   a. Students will have two days of classroom preparation

   b. Class will be divided into two groups with each group giving a fifteen minute newscast

2. Job breakdown and role play responsibilities

   a. Producer (one person)--Chairman of the line-up

   (NOTE: The newscaster, sports announcer, weatherman, and commercial people will write their own stories from current newspapers and turn them in to the producer for the line-up.)

   Example: Make two columns on a page, one is audio, one is video

Video	Audio
Jones	Good evening everybody coast to coast, Jim Jones reporting The next moon shot is set for one month from today (and so on with opening remarks)
Firestone	Commercial

   B. Newscaster (one person)

   1) Writes news stories from current newspapers

   2) Writes minimum of three stories with maximum time of five minutes

   3) Turns stories over to the producer

   4) Presents news stories

c. Weatherman (one person)

1) Writes weather report from newspaper

2) Has maximum time of three minutes

3) Turns stories over to the producer

4) Makes maps as props

5) Presents weather report

d. Sports reporter (one person)

1) Writes sports stories from newspaper

2) Writes minimum of four stories with a maximum of three minutes

3) Turns stories over to the producer

4) Makes required props

5) Presents sports report

e. Special reports (two people)

1) Make two special reports from two different locations

2) Write each report to be thirty seconds in length

3) Turn in report to the producer

f. Commercials (three people)

1) Each person will write one commercial thirty seconds in length

2) Each of three people will present his thirty second commercial at the producer's direction

g. Cameraman

1) Sets up video tape equipment as directed in Job Sheet #1

2) Operates camera and records newscast

h. Tape recorder operator

1) Operates the recorder

2) Insures microphone is in place and working

i. Light technician

1) Checks lighting

2) Adjusts lights

3) Secures additional lighting if necessary

j. Director

(NOTE: Teacher will play the role of director.)

TELEVISION

Unit 1

Job Sheet #1 - Connect and Operate a Video Tape Camera and Recorder

I. Tools and materials needed

A. Video tape recorder

B. Videa tape camera with tripod

C. Video tape monitor

D. Connector cables

II. Procedure

A. Connect the camera cable (supplied) to the VTR connector on the camera (Figure 1)

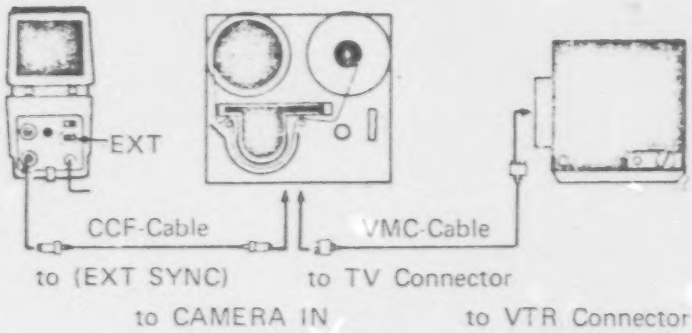


FIGURE 1

B. Set the SYNC selector to EXT

C. Set the VIDEO-RF switch to VIDEO

D. Connect both the camera and the video recorder to AC outlets

E. Turn on the equipment

F. Make audio connections to the video recorder

G. Connect a monitor to the video recorder and to an AC source

H. Proceed with the recording

I. Focus and adjust camera

J. Use zoom as required

Student Study Sheet
(One per student)

TELEVISION

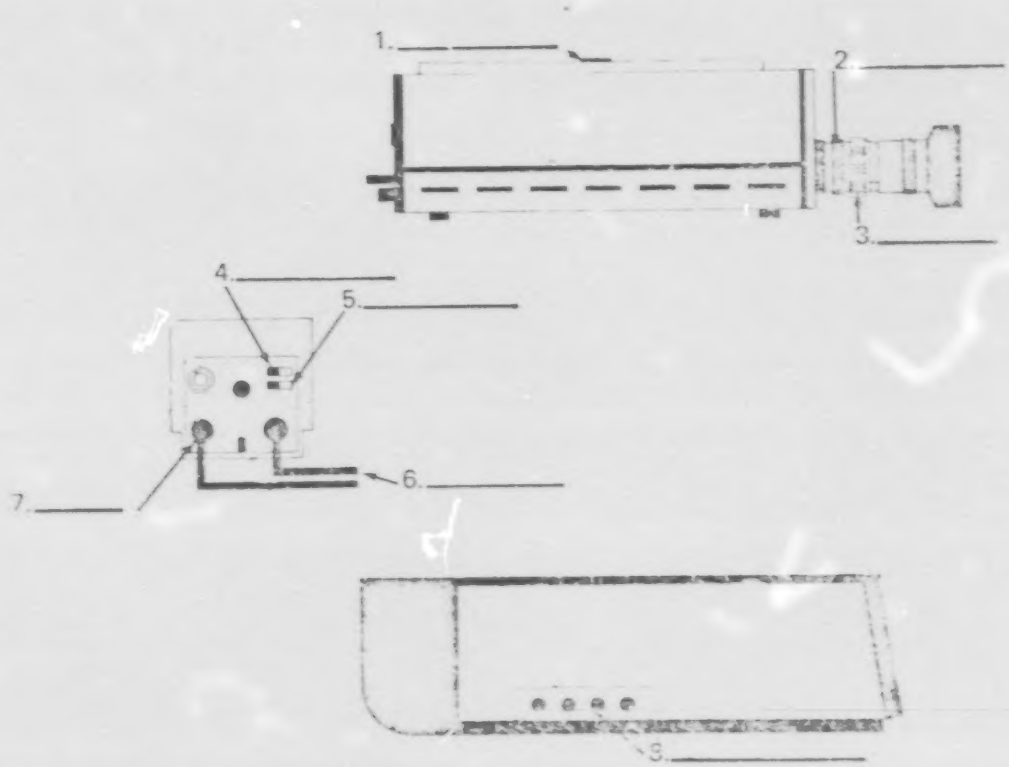
Unit 1

TEST

1. Discuss orally in class the controls and connectors of a video tape recorder.

2. Identify eight parts or controls on the video tape camera by placing the appropriate letters in the blanks provided on the diagram.

   a. VTR Connector
   b. Lens opening ring
   c. Vertical hold control
   d. Video-RF switch
   e. Zoom ring
   f. AC power cord
   g. Sync selector
   h. Viewfinder connector



3. List three types of lighting used in a television studio.

   a.

   b.

   c.

4. Select two microphones used in television from the list below by circling the correct two responses.

   a. Lavalier dynamic microphone

   b. Low volume microphone

   c. Misdirectional microphone

   d. Boom microphone

5. Match the jobs on the right to the correct responsibilities by placing the appropriate letter or letters in the blanks provided.

_____a. Select scripts	T. Television announcer
_____b. Present commercials	D. Programing director
_____c. Responsible for overall program schedule	P. Producer
	B. Broadcast technician
_____d. Operate electronic equipment	
_____e. Set up electronic equipment	
_____f. Control finances	
_____g. Keep in mind both advertisers' wishes and community's needs	
_____h. Present news, weather, or sports	

6. Discuss orally in class employment opportunities for jobs related to television.

7. Discuss orally or in writing the preparation and training for jobs related to television.

(NOTE: Space is provided if the instructor requests a written answer.)

8. Discuss orally in class the employment outlook and advancement possibilities for jobs related to television.

9. Match the jobs related to television on the right to the correct working conditions by placing the appropriate letter or letters in the blanks provided.

_____a. May be union	T. Television announcer
_____b. May work as many as eight hours overtime per week in small stations	D. Programing director
	P. Producer
_____c. Work under great pressure to meet deadlines	B. Broadcast technician
_____d. Generally work inside in pleasant surroundings	

10. Demonstrate the ability to:

a. Role play a news broadcast.

b. Connect and operate a video tape camera and recorder.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

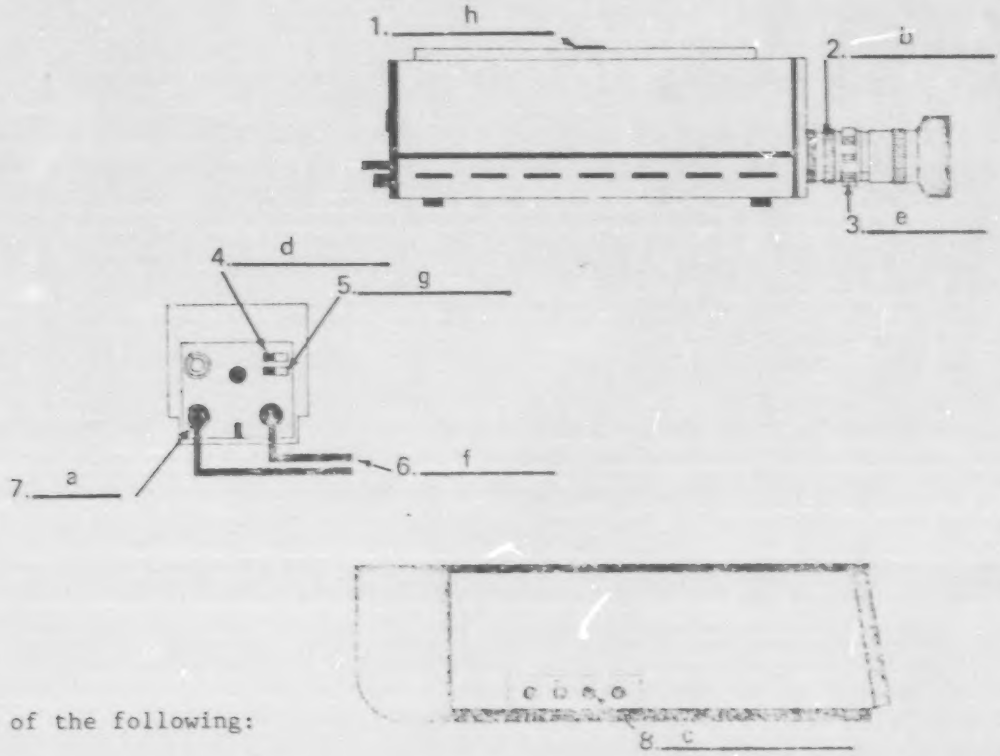
TELEVISION

Unit 1

ANSWERS TO TEST

1. Discussed orally to the satisfaction of the instructor.

2.



3. Any three of the following:

   a. Spotlight

   b. Pattern spotlight

   c. Scoop or floodlight

   d. Lighting grid

4. a, d

5. a. P

   b. T

   c. D

   d. B

   e. B

   f. P

   g. D

   h. T

6. Discussed orally to the satisfaction of the instructor.

7. Discussed orally or in writing to the satisfaction of the instructor. A written discussion should include the following points:

   a. Television announcer

      1) Excellent pronunciation

      2) Well-rounded education

      3) High standard of personal appearance

      4) English and speech courses are an asset

   b. Programing director

      1) Background in electronics

      2) Minimum of a high school education

      3) Often a background in sales helps to transfer from sales to programing

   c. Producer

      1) Minimum of high school education

      2) Classes in business management are helpful

      3) Overall background of television set operations

d. Broadcast technician

1) Must obtain a radio-telephone first class operator's license from FCC

2) High school courses in algebra and trigonometry are valuable

3) Technical and college level training is a distinct advantage

8. Discussed orally to the satisfaction of the instructor.

9. a. T,B

b. T

c. D, P, B

d. D, P. B

10. Performance skills will be evaluated to the satisfaction of the instructor.

Television Activities #1

Newscast

Objective: Create a newscast (news, sports, weather, etc.) that will be accompanied by pictures (Still or moving) or illustrations.

A. Use the procedures established in radio newscast for the audio aspect of television.

B. Locate pictures from magazines, take instamatic pictures or shoot film to accompany the story.

C. Construct a system of projecting the picture while delivering the audio portion of the newscast.

D. Rehearse

E. Video tape or present orally with projections on a screen.

Television Activities #2

Television Graphics

Objective: In rectangles (4 units across: 3 units down) create title logos for a group of shows.

A. Select the titles (and style of lettering) to be used.

B. Select accompaning illustration, picture or symbol if there is to be one.

C. Sketch the idea.

D. Once the final layout has been determined, construct the final logo.

E. Refer to graphics units for further help.

SAMPLE ASSIGNMENT:

"BURNING WHEELS" (A Movie About Teenage Dragsters)

154

Title Cards

I. They are used for pictures or any printed material

II. Society of Motion Picture and Television Engineers recommends:

A. Establish a rectangle with a 3 by 4 aspect ratio in the center of the card. If you use an 11 by 14 inch card you can do this by marking off an inch of dead space around the entire card and leaving an area of 9 by 12 inches. This is the scanned area of your card.

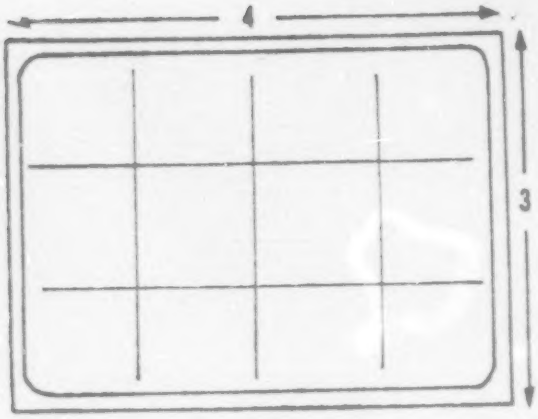
B. Mark off one tenth of the height of the scanned area with a horizontal line on the top and another tenth with a horizontal line on the bottom.

C. Mark off one tenth of the length of the scanned area with a vertical line of the right side.

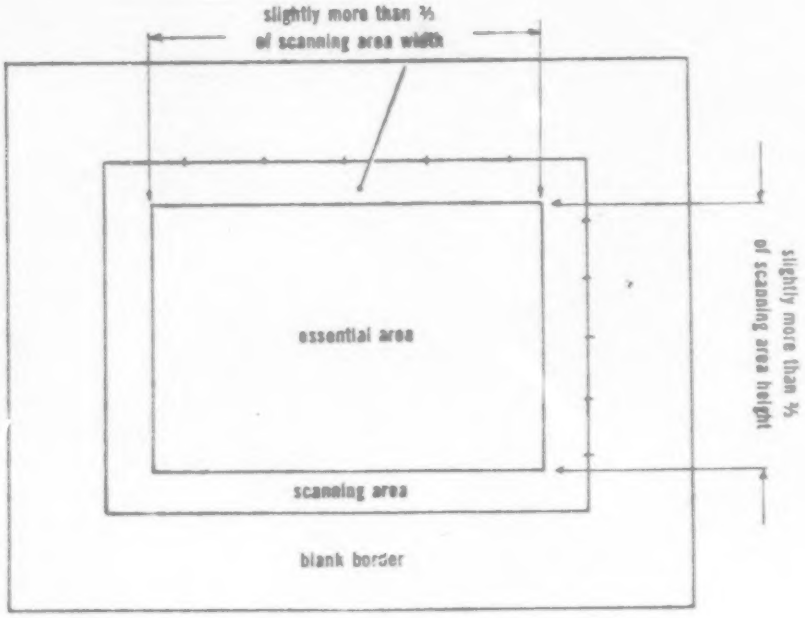
D. This will leave a rectangle centered in the scanned area measuring 7.2 by 9.6 inches. If you are using a conventional ruler, the figure can be rounded out to 7 ¼ by 9 ½, this is your copy area.

155

Student Study Sheet
(One Per Student)



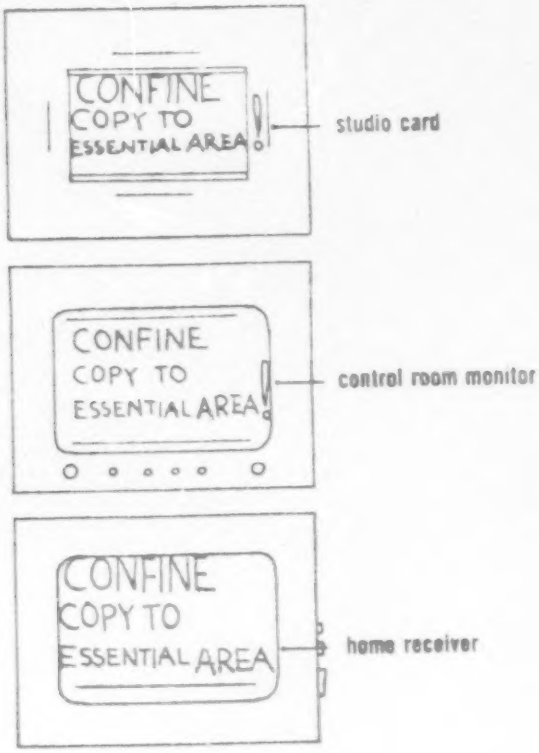
The amount of area loss depends on transmission factors and, to a greater extent, on the degree of misalignment of the home receiver. The picture height as well as the picture width may be simultaneously misadjusted on the receiver. Although this misadjustment may not change the general proportions of the image, it crops the top, bottom, and sides of the picture.



156

Student Study Sheet
(One Per Student)

The area framed by the camera and transmitted by the station (and, under ideal conditions, received on the home set) is called the scanning area. Centered within the scanning area is the most important part of the picture area, the essential area. All pertinent copy and picture information must be contained within the boundaries of the essential area, if the information is to be seen on a majority of television receivers. In general, the essential area is slightly more than 2/3 of the height and width of the scanning area.



Layout

The amount of information that can be simultaneously projected on the television screen is limited. You should confine your copy to no more than ten words. By limiting the number of words, you can use a letter size that is easily legible even to people sitting at a considerable distance from the screen. Large letters are especially important for color television. The limited resolution power of the television system will not reproduce detailed art work or small print.

Television Activities #3

Script Writing and Marking

Objective: Create a television script (commercial, drama, documentary, etc.) separating the audio and visual elements.

A. Thinking terms of television as primarily a visual medium, write a short television script. Brainstorming for ideas may help.

B. Using the Television Script Sheet as a format, proceed to mark the left hand column to explain the shot needed to accompany the wording.

C. Using the abbreviations listed under the Camera Shots supplement, mark the type of shot desired.

D. Using the symbols supplement, mark the script for camera usage.

158

Student Study Sheet
(One Per Student)

TELEVISION SCRIPT SHEET

TITLE _____

TITLE _____ TIME _____

WRITER _____ DATE _____

TYPE OF PROGRAM _____

****

VIDEO		AUDIO

Student Study Sheet
(One Per Student)

SYMBOLS FOR TELEVISION SCRIPT MARKING

①	TAKE CAMERA ONE
<	FADE IN
>	FADE OUT
X	DISSOLVE TO CAMERA TWO
SL	TAKE SLIDE OR CHANGE SLIDE
HIT MUSIC	BEGIN MUSIC
PAN R	PAN CAMERA TO THE RIGHT
DI	DOLLY IN
DB	DOLLY BACK
TR R	TRUCK RIGHT
ZOOM IN or Zin	ZOOM CAMERA LENS IN

CAMERA SHOTS (WHAT THEY SHOULD LOOK LIKE)

LS	LONG SHOT
MS	MEDIUM SHOT
CU	CLOSE UP
HS	HEAD SHOT
SS	SHOULDER SHOT
WS	WAIST SHOT
KS	KNEE SHOT
TIGHT	TIGHT SHOT (PICTURE FILLING THE FRAME)
LOOSE	OPPOSITE OF TIGHT SHOT
1SHOT	SHOT WITH ONE PERSON IN THE PICTURE (VARIATIONS ARE 2SHOT, 3SHOT, ETC.)

Television Activities #4

Television Cues

Objective: Study and practice the cues used for communication between floor manager and performer.

A. Select an activity from the television unit or create a new one (i.e., interview or panel discussion).

B. Videotape or present live to the class the selected activity.

C. The floor manager will cue the announcer according to the desired responses.

161

Student Study Sheet
(One Per Student)

CUEING SYSTEMS

To ensure that action begins and ends at the instant it is required, reliable cueing systems are essential, especially if accurate timing and continuity are to be maintained. Performers may be cued to enter, speak, start, stop, and so on, according to circumstances.

Most cueing is done by the floor manager, on the director's instructions. He will either make hand-signals to the performer himself, or throw a cue to someone nearer, who will relay it. Figure below lists these gestures.

Word-cues are widely used, the performer taking his cue from dialogue or action around him. Small, portable, cue-lights can cue performers from switches on the director's desk.

FLOOR MANAGER SIGNALS

Stand by; go ahead.

Cut it; stop; finish; omit rest of item.

You are cleared. You are now off camera and can move, or stop action.

Volume up; louder.

Volume down: quieter (sometimes precede by "Quiet" signal).

Quiet; stop applause.

Tighten-up. Get closer together.

Open-up. Move further apart.

Come nearer; come downstage.

Go further away; go upstage.

You're on that camera, play to that camera. (Sometimes preceded by "Turning actor's head" gesture.)

Play to the light indicated. (When actors are shadowing, point to light source and to area of face shadowed.)

Turn around (in direction indicated).

Speed up; faster pace; quicker tempo. (Movement's speed shows amount of increase.)

Slow down; slower pace; stretch it out. (Indicated by slow "stretching" gesture.)

O.K.; you're all right now; it's O.K. (Confirmation signal.)

We're/you're on time.

Are we on time? How is time going?

You have ... time left (Illustrated—2 mins. and ½ min.)

Wind-up now.

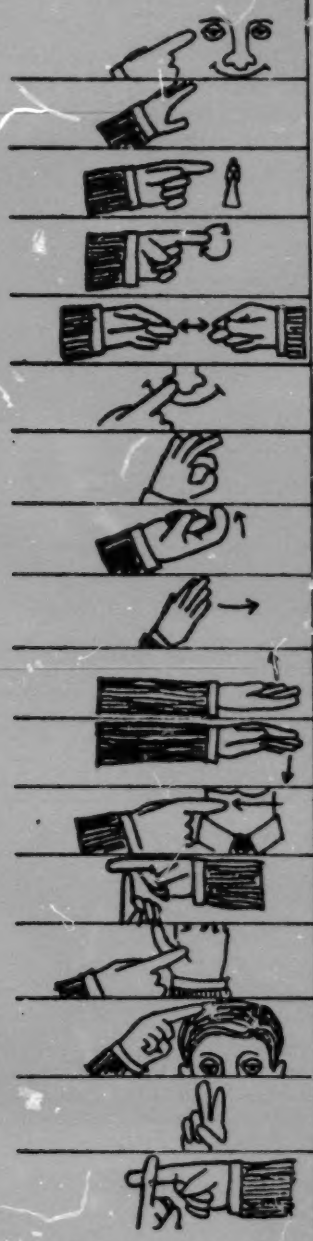
To audience: you can applaud now. (May be followed by "Louder" signal.)

Stop. (For applause, widespread action, etc.)

162

Student Study Sheet
(One Per Student)

Since the microphone is unable to distinguish between the sound you want to broadcast and the sound you would rather keep in the studio, all communication between the people in the studio and the people in the control room must be silent. To accomplish this, a set of signals has been developed which is used by all stations. Learn the signals so you can communicate when you are "on the air".



WATCH ME: WATCH FOR CUE
point finger to eye

READY FOR CUE
put one hand up, palm out

TAKE THE CUE
lower arm form ready for cue position, point index finger at person involved

SPEED UP
rotate index finger in a clockwise motion

SLOW DOWN
use both hands to make a stretching taffy, pulling-apart motion

ON THE NOSE
touch nose with index finger to show timing is right

OKAY: EVERYTHING IS UNDER CONTROL
raise hand - form circle with thumb and forefinger

MOVE CLOSER TO MIKE
make a beckoning gesture or move hand close to mouth (palms in)

MOVE AWAY FROM MIKE
make a pushing away gesture

MORE VOLUME: SPEAK UP
extend arm - palm up, and raise

LESS VOLUME: YOU'RE TOO LOUD
extend arm - palm down, and push down <u>or</u> raise finger to lips

CUT
draw forefinger across throat in a slashing motion

BRING IN THEME MUSIC
make a "T" with forefingers of each hand

PLAY COMMERCIAL
use index finger - point to palm of opposite hand

REPEAT LAST CHORUS
point to top of head

NUMBER OF MINUTES LEFT
hold up appropriate number of fingers

½ MINUTE
divide one index finger with the index finger of the other hand

163

Television Activities #6

Lighting for Television (and film)

Objective: Create an emotion, mood or atmosphere desired and light the subject (person, titles, display, room, etc.) to develop it.

A. Select the subject.

B. Arrange or place the subject in relation to its surroundings.

C. Determine how many lights will be needed and how bright they need to be. If coloring is desired, include the use of gels or some substitute.

D. Arrange the lights in relation to the subject and carry out necessary corrections.

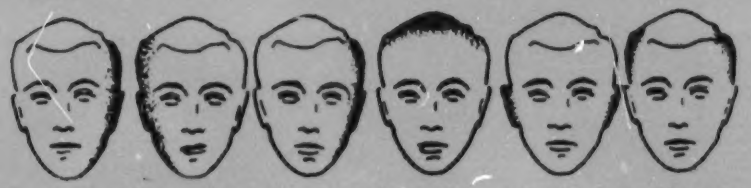
Use can be made of school stage lights, flood lights, or even lights made with tin cans and a light bulb.

164

Student Study Sheet
(One Per Student)

LIGHT REFLECTION. Brightness changes also with the texture and finish of the surface, and the angle at which we view it. *Left:* Complete absorption indicates little or no reflection (e.g. black velvet), and the surface appears dark from all viewpoints. *Centre left:* With diffuse reflection light scatters in all directions (rough, irregular surfaces) and the surface is fairly bright from all viewpoints. *Centre right:* Spread reflection occurs on glossy surfaces, and their appearance is fairly dark from viewpoint (1), bright from viewpoint (2) and fairly bright from viewpoint (3). *Right:* Specular reflection is uni-directional, and comes from polished metal, mirrors, etc. From viewpoints (1) and (2) the surface seems dark, from viewpoint (3) it appears bright.

CORRECTIVE LIGHTING. The human face is rarely symmetrical. Most faces have characteristic unbalance (*left*) or disproportion (*right*).



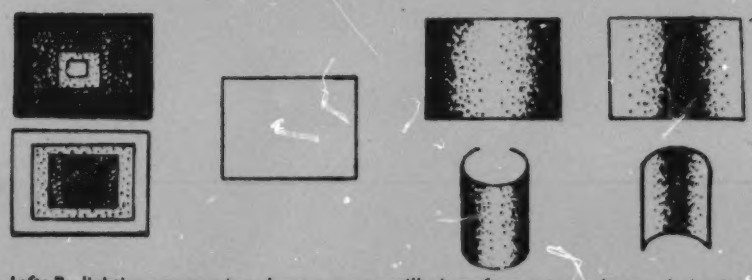
On camera, such irregularities may be emphasised, but can be disguised with varying success by make-up and, where the subject is stationary, by lighting.

Where the subject is mobile, corrective lighting is impracticable, and irregularities may even be exaggerated if incorrectly lit. For example, by the key light on the wrong side (*left*), by top light, combined top light and backlight, and double-rim lighting (*right*).

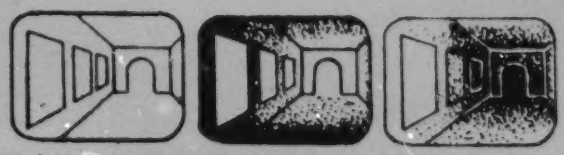
165

Student Study Sheet
(One Per Student)

TONAL PLANES AND TONAL GRADATION. *Left:* A light-toned object or plane tends to look larger and more distant than a similar dark-toned area. *Right:* Compare the effect of distance where our vision stops at the black openings and where the white openings suggest further planes beyond the walls.



Left: By lighting progressive planes we get an illusion of recession, whereas darkening more distant planes destroys all sense of depth. Now we have the principle of tonal gradation (shading), which will affect our impressions of form. *Right:* The flat, plain area, when shaded one way suggests one thing but shaded differently, suggests something else.



Perspective alone gives us a partial impression of space (*left*). Tonal change, suitably graded, gives us an impression of both depth and solidity (*centre*), while unsuitable gradation will start to destroy the illusion already provided by perspective (*right*).

SURFACE BRIGHTNESS. The apparent brightness of a surface depends upon its actual surface tone and the amount of light directed upon it. Each of these examples would appear equally bright.

166

Television Activities #6

Television Sets

Objective: Create a model or actual size set for a television program or a scene from a program.

A. Discuss and visualize a set for a particular scene. Keep in mind, moods, workability and other factors that are important to the total effect of the picture which would appear on the screen.

B. With the top and one side of a cardboard box, cut out, draw the layout (windows, placement of furniture, fireplace, etc.) for the set.

C. Collect materials, illustrations and doll furniture to be used.

D. Construct items that cannot be found.

E. Paste-up, paint and insert the backdrops.

F. Situate furniture and other props.

G. Place model cameras (matchbox) where they will probably be located.

H. For outdoor scenes, miniature landscape model materials may be substituted.

I. Display the model.

167

Student Study Sheet
(One Per Student)

Sets

I. Three problems when you design a set:
   A. Include areas for the necessary action
   B. Provide mobility for cameras, mikes and crews
   C. It must reflect your interpretation of the mood and style of the drama:
      1. Is it complete realism?
      2. Is it one of the varities of selective realism?
      3. Is it completely non-objective?
      4. Or is it sylized?

II. Three different styles for a scene in an Eighteenth Century jail. The basic requirements are:
   A. A sitting area for Macbeth
   B. An entrance
   C. An area for a chase
   D. Depth for the composition of pictures with as many as four people
   E. Realistic set:
      1. constructed from flats and columns
      2. entrance an arch show realistic effect of heavy walls
      3. through arch steps giving depth to the scene
      4. behind window set barred window with a backing flat behind it
      5. area for Macbeth against one column backed by a wall
      6. foreground column gives perspective and depth to set from the angle seen in illustration
      7. set is mobile
         a. column on casters
         b. wild wall
         c. angled flats
   F. Modified Realistic:
      1. realistic set pieces placed against a black backdrop
      2. columns, door, window seat, bench and table
      3. lighting is extremely important
      4. light comes through window and is seen on the floor - gives a sense of tiles
      5. concentrated on the columns, door in itself, and outline the playing area
      6. less mobility
      7. in directing, use:
         a. close shots
         b. concentrate on shoulder shots
         c. working depth shots against the barred windows
   G. The stylized Cameo set
      1. built of flats, distorted in size and shape and set against a set
      2. minimum of background for essentially the same playing area
      3. this style emphasizes comedy elements
      4. camera complete mobility

Television Activities #7

Costumes and Make-up

Objective: Create characters for a specific television program.

A. Select the type of program and characters needed. If this is not original, a play could be substituted.

B. Determine the costumes and make-up needed. Television make-up is often done differently than stage.

C. Make listings for each character.

D. Locate the materials and outfit the characters.

Television Activities #8

Special Effects - Visuals

Objective: Create optical special effects.

A. Select effects that are difficult to obtain as actual objects (mountains, trains, boats, rivers, wreckage, etc.) or occurences (fire, auto accidents, volcano erruptions, fog, etc.)

B. Discuss ways of constructing a model or illusion.

C. Gather materials.

D. Carry out the effect and photograph it for slide projection or movie projection.

E. Develop and project the end result.

F. Evaluate and if possible, correct errors.

Student Study Sheet
(One Per Student)

VISUAL AND AURAL EFFECTS

We tend to expect effects to be spectacular or abnormal in some way. But effects devices are at their most exacting and interesting when we use them to recreate naturalistic illusions, and here, paradoxically enough, the more successful we are, the more self-effacing such effects become.

In this chapter we shall meet many methods and mechanisms, old and new. Some are widely-used tricks-of-the-trade, others are subject to patents, design registration and similar restriction.

Visual Effects

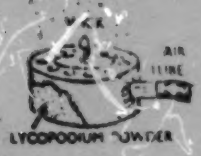
Dry-ice - solid carbon dioxide. When highly compressed, carbon dioxide solidifies into a white, ice-like substance. This, in block form, is widely used as a coolant. Allowed to become warmer, the dry-ice evaporates slowly, giving off clouds of harmless white vapour as it returns to its natural invisible gaseous state. Quite cheap, and easily stored, the material is foolproof to handle. The only precaution necessary is to avoid prolonged skin contact, which causes blistering.

Small pieces dropped into water dissolve, bubbling with wreathing white "steam". Ideal for bubbling retorts, and magic potions, the effect is dramatic, but harmless. One can even drink the result; unlike the poisonous titanium tetrachloride often used for steaming liquids.

As the water becomes progressively colder, the dry-ice dissolves less vigorously. Hot water prolongs the action. But where we want continuous dense mist, the dry-ice is best placed on an electric hotplate, or in a portable steam-over. The heavy white vapour sinks rapidly and can be blown to represent swirling ground-mists, ethereal clouds around dancer's feet, smoke from burning rooms.

Because the vapour disperses fairly rapidly, continuous replacement is needed. This is just as well, for persistent clouds can be an embarrassment around the studio.

LYCOPODIUM POT. The lycopodium powder is blown through holes on to the burning wick.



Fire. Although most mock fireplaces use perforated gas-pipes to provide flames, subterfuges are generally safer for more widespread fire-effects.

The lycopodium pot is a reliable safe controllable device, for its powder is only ignited when blown on to the wick. Sheets of flame can be generated on cue by regulating the air supply.

Wood-alcohol in jellied or liquid form enables torches, furniture, buildings, to burn fiercely; augmented, perhaps, with fragments of paraffin-wax or firelighters.

To avoid real flames altogether, we can superimpose filmed flames. Or, with care, smoke and flickering light alone will give the illusion.

Water-tank effects. In a small water-tank we can contrive many strange and impressive sights. Substances dropped into the water (e.g. potassium permanganate), or stirred from its bottom, conjure up clouds, streaks of variegated tones, ephemeral patterns. With the picture inverted, whatever is dropped or squired into the tank will seemingly rise from the ground - useful for explosions and volcanic eruptions. Water catastrophe, flooding, fushing torrents are easily simulated. Lettering can dissolve to illegibility.

Glass partitions enable us to introduce several separately controlled effects into the same tank.

THE WATER-TANK. Shot in big close-up the water-tank provides a number of visual opportunities.

Student Study Sheet
(One Per Student)

Glass panels. An unbreakable glass panel in front of the camera will protect it against subjective assaults! It can effectively prevent such discomforts as thrown water, fruit, landslides, collapsing buildings, engulfing camera and cameraman.

Lecturers have used glass panels as invisible blackboards; standing behind, painting, facing the camera. The result is stuntish, and becomes bizarre and confusing unless suitably presented; for the panel-writing and the studio-scene can merge indecipherably.

Turntables. Ranging from hand-turned 6 in. miniatures to electrically-driver revolving stages, turntables have numerous applications. Horizontal turntables are invaluable where we want to display sculpture, models, etc., from various angles. Vertical turntables can spin titling, decorative shapes, or stills (e.g. to suggest crashing aircraft dizziness, and the like).

Passing backgrounds. To create the illusion that a background is moving past our stationary subject, there are several devices. A continuously-moving roller-cloth may suffice, providing it is soft-focused and without obvious detail.

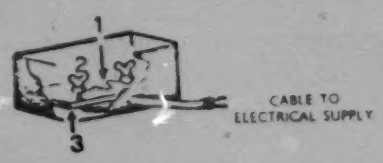
We can make use of moving back-projection, electronically-inserted moving backgrounds. Walking in front of a moving background is usually dummied by marking-time. Treadmills or moving floors are most effective, but seldom noise-free.

For night scenes, the illusion of passing backgrounds may be created by moving lights alone, using a cyclodrum or mirror-drum. A scenic projector may also be used.

Fog and dense smoke. Smoke superimposed from film, or a smoke-filled glass tank, is convenient and controllable; but unconvincing where people walk, or the studio camera moves. Live smoke is invariably unpleasant, and liable to hang over into following scenes.

Special blow-torches releasing crude-oil vapour through heated tubes generate controllable clouds of dense smoke. Smoke-producing pyrotechnics are ignited by slow-fuse or electrical contacts, but they burn persistently until exhausted. Dry-ice provides innocuous "smoke", which disperses readily. Smoke from compounds such as metafuel cubes (spread on to a hot-plate), or exposed titanium tetrachloride, is sometimes suggested, but is highly distressing to breathe. Flash-boxes loaded with naked-ignition smoke-powder and magnesium flash-powder, produce bursts of smoke on cue.

THE FLASH-BOX. (1) Low-current fuse wire and powder; (2) terminals; (3) asbestos board. Electric current melts the fuse wire, igniting the powder.



152

Student Study Sheet
(One Per Student)

Wind. For realistic wind, an assembly of vari-speed generating devices are available, from domestic fans to huge, encased airplane-type propellers. Most wind machines are bulky and highly directional. Moreover, by the time their breezes are strong enough to register, dust and paper are airborne, and microphones rumble. Localizing the wind may reduce these hazards. Often better still, we simulate the effect instead. Fanning with a hand-held board, or attaching cottons to waft drapes or blow-away hats, can work wonders.

Cobwebs. A special gadget, allowing rubber-solution to leak in a fine jet on to rotating fan-blades, produces cobwebs that would satisfy a spider. The thrown filament is normally spun on to a framework of stretched black cotton threads. A poorer substitute id devisable by squeezing rubber-solution between two boards, and drawing them apart. Dusting with Fuller's earth makes the cobwebs visible.

Gunfire and bullet-holes. Real gunfire being unpopular, bullet-holes are cunningly contrived by pre-drilled holes, plugged with dowelrod and dust-packed, strings or springs remove them on cue or else by electrically-ignited charges in dust-packed holes.

Ground impact-spatter may be simulated by buried charges or, more conveniently, by a compressed air system.

BULLET HOLES. *Left:* When tripped, the mousetrap pulls the plug from the pre-formed bullet hole and makes contact with a metal strip, firing electrically-ignited charges. *Right:* For ground-spatter effects, compressed-air is connected to a buried perforated pipe. When released, air puffs through each hole in turn, giving a realistic surface spatter. Rubber branch-pipes allow more widespread effects.

Partial disappearances. If we place a subject before a black background, any part we then cover in black will disappear.

In this way we can produce headless bodies, disembodied limbs, gravity-free ballet (assisted by black-clad partners), and kindred mysteries.

Vignettes. Simply a black cardboard stencil placed in front of the camera, to mask-off or isolate parts of the scene.

VIGNETTES. *Left:* The vignette used as a masking effect. *Right:* Vignetting to obtain localized superimposition.

Student Study Sheet
(One Per Student)

LIGHTING EFFECTS

Sparkles. Glitter, stars, stardust and similar scintillations, are emulated by sequins, diamante',or flake-mica. Glass chips are often stuck to scenery for glitter effects, but, remember, they cause painful abrasions if handled.

Metallic dust (used for sparkling coiffures) can be dropped into a light-beam to produce a shimmering column of light. So, by cutting from Mephistopheles to such a cloud, we have him vanish in a puff.

Reflected shapes. The decorative and dramatic possibilities of light reflections have been to date little used.

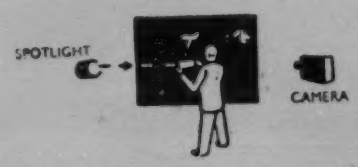
The reflection can be thrown directly on to the scene (rear or forward), or superimposed upon another's shot. We can cover or paint the reflector with a stencil, and so lettering, patterns, or symbols, can be flexed and manipulated ad infinitum. By covering up, we can make any part of the reflection disappear. Varying the finish of the reflector's surface (e.g. greasing, varnishing) changes the relative brightness, clarity or texture of parts of the image. Foil, sequins, etc., can be used for localized reflections. Furthermore, by arranging patterns at either end of a reflector, their respective images can be juggled, superimposed, interposed, simply by flexing.

Amongst the countless uses of reflected shapes we have that of simulating stars, nebulae, planetary-motions, clouds, lighting, making mobile patterns for abstractions, dream sequences, mental states, producing magic and supernatural effects, or animated titling.

Ripple reflections. To imitate the rippling-light reflected from nearby water, we have the apparatus illustrated.

Apparatus employing moving patterned glass or metal stencils is used in theatres to project water-ripple effects, but the result may not satisfy the scrutiny of the television camera.

Firelight. Real firelight is too feeble to illuminate the scene, or to register satisfactorily on camera, so light from a powerful lamp on the ground is flickered instead. Waving linen streamers or leafy branches can produce quite convincing illusions - when skilfully handled. The motion picute practice of using smoke or gas-jets to animate the light is generally less convenient. There are automatic fire-flicker devices, but most give somewhat mechanical results.



REFLECTED SHAPES. Polished material, held in a sharply-focused light-beam, projects its image on to nearby surfaces. Bending the reflector distorts the reflected shape.

174

Television Activities #9

Camera Angle Shots

Objective: Photograph several pictures from different viewpoints.

A. Decide on the subjects to be photographed.

B. Make a list of the possibilities of viewpoints.

C. Determine the shots which will be taken.

D. Shoot the film (instamatic, 35mm, still, movie or other) and have it developed. Project the results and evaluate the ideas communicated.

This is a good exercise for film study also.

Television Activities #10

Setting up a television studio

Objective: Create a television studio and station with the necessary personnel to make decisions and operate it.

A. Pick a four initial title for the station.

B. Determine the audience you will be reaching. (Take surveys or have discussion on "to whom" the programs will be aimed.)

C. Decide on program format for a daily operation.

D. Assign, volunteer, elect class members for the various positions: 1. audio personnel 2. salesmen 3. program director 4. production manager 5. news director 6. film editor 7. photographers 8. graphic artists 9. cameramen for T.V. 10. projectionist 11. others

E. Begin developing programs for the different time slots

F. Meet in groups (for each show) and map out the illustrations, costumes, music, performers, scripts needed for each show.

G. Begin the production of the shows.

H. Rehearse each show.

I. Sell commercial time and write the commercials.

J. Make cue cards where necessary.

K. If video equipment is available, tape the show. If it is not, go through the programs much like a stage play and tape the sound and use mock cameras made of cardboard.

FILM

Introduction to Film Careers

Film making covers a broad spectrum of career opportunities. Even the types of subject matter involved presents a variant that affects ones choice. From advertising, newsfilm and education to major studio and documentary filming the selection can be made on special interest and occupational availability. Needless to say, only a few highly trained professionals produce our theatre show motion pictures. Obviously, at some levels of production people perform one function of what goes into a single movie. At the same time many people choose to do all the elements of a completed film. They write, direct, become cameraman, do sound work, edit, splice and even act.

The making of films may be an integral part of another primary occupation. A promotion man may produce films as a small part of the total career he has chosen. A television newsman may be called upon to supplement a story with footage of the story. A complete list of such careers cannot possibly be explored here. The following list is not intended for the purpose of encompassing such overlap. Rather it is aimed at those careers solely or primarily converned with movie making. At the same time the list is not exclusive of other related careers.

Student Study Sheet
(One Per Student)

FILM CAREERS and DESCRIPTIONS

Producer - Coordinates writers, directors, and editors. Works with the budget and engages key actors and production staff members.

Director - Directs the cast and crew members during rehearsals and filming.

Director of research - Researches and then advises director concerning historical details of the subject to be filmed.

Director, Art - Directs and coordinates motion picture art work production concerned with set design, scenic effects, and costumes.

Director, Music - Supervises personnel in studio music department and conducts studio orchestra.

Director, Casting - Auditions and interviews performers for specific parts.

Director, Location - Seeks out, then arranges for leasing of suitable property for use as a location site.

Editor, Scenario - Supervises scenario and continuity writers engaged in writing stories, screen adaptions, and screen continuity.

Scenario Writer - Writes stories, adaptions, or scenarios.

Continuity Writer - Writes sequence of scenes in photoplays, arranging scenes to provide action continuity to series of events being portrayed.

Gag Writer - Writes humorous dialogue, jokes.

Script Clerk - Keeps records of data relative to filming scenes and performs secretarial duties for director.

Background and Title Artist - Draws, and paints titles and title background, and also letters the credits to be photographed. (See Graphics)

Cartoonist - Draws cartoons in sequence to portray animation of characters, of wind, fire, rain or of background layouts.

Color Advisor - Advises cartoonist and animation photographers about color.

Painter, Animated Cartoons - Applies paint on celluloids to depict characters and background.

Cameraman, Animation - Operates special cameras to make animated cartoons.

Cameraman, Special Effects - Photographs still and action scenes on minature sets, when developed and incorporated in sequence, these create realistic images of action supposedly occuring.

Dubbing Machine Operator - Tends film dubbing machines that play back recordings to facilitate sound and picture synchronization.

Electrician, Chief - Supervises and coordinates installation, maintenance, and operation of all electrical lighting equipment.

Machinist, Motion Picture Equipment - Repairs and services mechanical parts of photographing, projecting, editing, sound recording, and power equipment.

Microphone Boom Operator - Moves boom according to script and position of performers.

Operator, Lights - Positions and operates overhead and floor lights during filming.

Recordist - Controls recording equipment of sound that originates on set.

Sound Cutter - Edits and synchronizes music, dialogue, and sound effects of film into single sound print.

Sound Mixer - Operates console to regulate volume level and quality of sound during filming.

Stage Man - Places microphone on set preparatory to filming.

Editor, Film - Edits film and sound tracks according to scenario and director's requirements.

Film Printer - Operates film printing machine whereby image on negative motion picture film is printed on positive.

Film Splicer - Splices ends of film together to make a continuous reel.

Librarian - Keeps library of stock and processed films for future reference.

Motion Picture Projectionist - Sets up and operates projector and sound reproducing equipment.

Costumer - Designs and selects costumes for cast according to period style and characters to be portrayed. Fits costumes.

Make-up Man - Analyzes production requirements and applies make-up to alter actors' appearances in accord with their roles.

Prop Maker - Fabricates props, minatures, and sets from various materials. Rigs and controls moving elements that depict action.

Painter, Stage Settings - Paints walls, furniture, etc., of sets.

Set Director - Coordinates decoration of sets.

178

Student Study Sheet
(One Per Student)

Special Effects Man - Operates special effects equipment such as wind and fog machines.

Miniature Set Constructor - Constructs miniature models according to scale.

Sketcher - Plans, develops, prepares sketches of scenes and backgrounds against which action is shot.

Figure 1 is a list of basic items that are needed to start instruction in film careers.

Student Study Sheet
(One per student)

Glossary of Film-making Terms - Learn!

1. Long shot - view of a scene from a great distance

2. Medium shot - view of scene from a middle ground

3. Close up - view of a scene or individual close in, usually head and shoulders or just face.

4. Extreme close up - view of scene or individual showing a detail of the face (eyeball, eye and nose) or object (dial on a telephone, a key)

5. Establishing shot - a long shot that sets the time, locale, weather, period, etc.

6. Two-shot - usually the heads and shoulders of two actors on the screen.

7. Three shot - heads and shoulders of three persons on the screen

8. Pan - Moving the camera from left to right or right to left or up or down an object, scene, or individual

9. Dolly - the camera is mounted on a tripod with wheels and is moved into a set

10. Zoom - a lense that can go from a long shot to extreme close up without moving the camera

11. Montage - a shot in which several scenes appear together at the same time.

12. Cinema verité - a scene shot with a hand-held camera that suggests real life.

13. Fade - gradually darkening a scene, leaving the screen empty - often used to end an action or change the theme

14. Dissolve - when one scene briefly overlaps another, to create a feeling of continuity

15. Voice-over - the narrator's voice dominating a scene that may have background music and/or sound effects

16. Scoring - combining music with the film and voice parts

17. Work print - the uncorrected printed film

18. Answer print - the first corrected print

FILM MATERIALS

Essential film texts

Movie camera - super 8, 8mm, or 16 mm

Magazines - picture

Lights

Still camera

Records

Bulletin board

Splicing tape

Play books

Screen

Projector

Tape recorders - cassette and/or reel-to-reel

Record player

Clean tapes

Coloring utensils - crayons, magic markers, etc.

OPTIONAL

Tripod

Editor-viewer-splicer

Easel

figure 1

182

Student Study Sheet
(One Per Student)

TV FILM CONVERSION TABLE
TIME-FILM-WORDS

Time Period in Seconds	16mm Film Feet	16mm Film Frames	35mm Film Feet	Maximum Words Narration
½	0	12	3/4	1
1	0	24	1 1/2	2
2	1	8	3	4
3	1	32	4 1/2	7
4	2	16	6	9
5	3		7 1/2	11
6	3	24	9	13
7	4	8	10 1/2	16
8	4	32	12	18
9	5	16	13 1/2	20
10	6		15	22
15	9		22 1/2	33
20	12		30	44
25	15		37 1/2	55
30	18		45	65
35	21		52 1/2	77
40	24		60	88
45	27		67 1/2	99
50	30		75	110
55	33		82 1/2	120

TIME PERIOD IN MINUTES

1	36	90	130
1 1/3	54	135	195
2	72	180	260
2 1/2	90	225	325
3	108	270	390
4	144	360	520
5	180	450	650
10	360	900	1300
20	720	1800	2600
30	1080	2700	3900

183

Film Activity #1

Obtaining a story

Objective: Develop a story for filming purposes by using one of the following methods (1) write an original story for filming (2) re-write a common theme (boy meets girl in big city) for a film (3) develop a documentary (4) re-write a short play for filming (5) select a short story and change it to fit film (6) select a recording and prepare its message for filming.

A. Select one of the above for the source.

B. Decide on the thrust of the message (emotion, story, education, aesthetics, comedy, etc.)

C. Write or re-write the story keeping in mind that this is primarily a visual medium.

D. Break the script down into scenes.

E. Break the scenes down into specific shots (angles, persons, movement of camera).

F. Review the script for modifications.

G. Carry through by filming the story.

184

Student Study Sheet
(One Per Student)

These persons make interesting characters for a story:

Actor or actress	Banker	Explorer	Hermit
Advertising man	Barbarian	Fanatic	Mobster
Agent	Baron	Financier	Model
Agitator	Cannibal	Fireman	Moonshiner
Alienist	Capitalist	Fisherman	Murderer
Anarchist	Captain	General	Musician
Apostle	Card sharp	Gladiator	Mute
Artist	Dancer	Governor	Media Consultant
Astrologer	Deaf person	Grafter	Steelworker
Astronomer	Dentist	Guard	Stenographer
Athlete	Detective	Guide	Stool Pigeon
Auditor	Dictator	Gunman	Streetwalker
Auto racer	Editor	Gypsy	Student
Aviator	Embezzler	Hangman	Swimmer
Ball player	Emigrant	Healer	Swindler
Bandit	Engineer	Heeler	Tailor

Interesting Places in Which a Story Might Take Place

Aboard plane	Indian Country	Prairie
Aboard ship	Island	Prison
Aboard train	Jail	Publisher's office
Advertising Agency	Jungle	Saloon
Airfield	Laboratory	Savage country
Anarchist's hdqts.	Lake	School
Aristocratic home	Lawyer's Offices	Sea
Army post	Lighthouse	Small town
Artist's studio	Logger's camp	Smuggler's hangout
Battlefield	Newspaper office	Stage
Beach	Night club	Stock exchange
Bowery	Observatory	Theatrical district
Broadway	Penitentiary	Tropics
Broker's office	Piers	Television studio
Cabaret	Pirate's lair	
Camp	Plantation	
Cattle Ranch	Police station	

Student Study Sheet
(One Per Student)

36 BASIC PLOTS

GOOD FILMMAKING REQUIRES AN ORGANIZED WRITTEN PLAN. THIS PLAN, THE SCRIPT, IS REALLY WHERE PRODUCTION BEGINS. THE CORE OF THE SCRIPT, ASSUMING A STORY FORM IS BEING USED, IS THE PLOT. LEST YOU THINK THERE ARE ENDLESS POSSIBILITIES ... YOU WILL FIND THAT ALL PLOTS, WHEN REDUCED TO A SIMPLE SENTENCE OR PHRASE, FALL INTO 36 CATEGORIES.

1. SUPPLICATION: persecutor, suppliant, powerful authority whose decision is in doubt.
2. DELIVERANCE: an unfortunate, a deliverer, a threatener
3. CRIME FOLLOWED BY VENGEANCE: a criminal, his avenger
4. VENGEANCE - KINDRED UPON KINDRED: guilty kinsman, avenging kinsman, remembrance of the victim, a relative of both
5. PURSUIT: punishment and a fugitive
6. ABDUCTION: the abducted, a guardian, an abductor
7. REVOLT: a tyrant, a conspirator
8. CRIMES OF LOVE: the lover, the beloved
9. MURDEROUS ADULTERY: 2 adulterers, a betrayed husband or wife
10. AMBITION: an ambitious person, the thing coveted, an adversary
11. DISASTER: a vanquished power, a victorious enemy, a messenger
12. MADNESS: madman, victim
13. AN ENEMY LOVED: the beloved enemy, the lover, the hater
14. OBSTACLES TO LOVE: 2 lovers, an obstacle
15. FATAL IMPRUDENCE: the imprudent person, the victim or object lost
16. DARING ENTERPRISE: bold leader, an object, an adversary
17. OBTAINING: solicitor, an adversary who is refusing or an arbitration and the opposing parties
18. ENMITY OF KINSMAN: a malevolent kinsman, a hating or hated kinsman
19. RIVALRY OF KINSMAN: the preferred kinsman, the rejected kinsman, the object

Student Study Sheet
(One Per Student)

20. SLAYING OF A KINSMAN UNRECOGNIZED: the slayer, the unrecognized victim

21. THE ENIGMAN: the interrogator, seeker and a problem

22. DISCOVERY OF THE DISHONOR OF A LOVED ONE: the guilty one, the discoverer

23. FALLING PREY TO CRUELTY OR MISFORTUNE: an unfortunate, a master, and a misfortune

24. CONFLICT WITH A GOD: a mortal, an immortal

25. ERRONEOUS JUDGMENT: the mistaken one, the victim of the mistake, the cause or author of the mistake, the guilty person

26. REMORSE: the culprit, the victim of the sin, the interrogator

27. RECOVERY OF A LOST ONE: the seeker, the one found

28. INVOLUNTARY CRIMES OF LOVE: the lover, the beloved, the revealer

29. LOSS OF LOVED ONE: a kinsman slain, a kinsman spectator, an executioner

30. MISTAKEN JEALOUSY: the jealous one, the object of whose possession he is jealous, the supposed accomplice, the cause or author of the mistake

31. SEDUCTION: a deceived husband, wife or lover...and the adulterer or deceiver

32. SACRIFICING SELF FOR AN IDEAL: hero, ideal, the creditor of the person or thing being sacrificed

33. NECESSITY OF SACRIFICING LOVED ONE: the hero, the beloved victim, the necessity

34. SELF-SACRIFICE FOR KINDRED: hero, kinsman, creditor of person or thing being sacrificed

35. ALL SACRIFICED FOR A PASSION: the lover, object of the fatal passion, the person or thing sacrificed

36. RIVALRY OF SUPERIOR AND INFERIOR: the superior rival, the inferior rival, the object

Film Activity #2

Storyboard

Objective: Select a story written for film and translate it to pictures.

A. Select the "story" (poem, musical recording, play, original story, etc.)

B. Using a storyboard form (see next page) draw a rough sketch of each shot or sequence of shots to be filmed.

C. Write notes for the film sequence and cameraman (i.e. pan left, zoom in, medium shots, etc.)

D. Write accompaning sound and other notes.

E. On a bulletin board, arrange the cards in sequence to the story. Next, number the cards and then rearrange them for their shooting order.

F. Cluster the cards into shooting locales and persons needed for the shots.

G. Put the titles and credits on storyboard forms.

H. Shoot the film.

STORY BOARD

Job:

Production Notes:

Commentary:

STORY BOARD

Job:

Production Notes:

Commentary:

189

Film Activity #3

Discovering the Camera

Objective: Understand and recognize the basic parts and principles in the operation of a movie camera.

A. Select a small movie camera - super 8 or 8mm (students can bring these from home or check with the A.V. department.)

B. Study the handbook that comes with the camera.

C. Determine the limitations and capabilities of the camera.

D. Decide on shots that would be interesting to experimentally try.

E. Shoot the experimental shots, have the roll developed and view the results.

F. Apply all of this experimentation to the actual shooting of a "story" film.

Optional

G. Have a photographer or film equipment salesman talk on the various aspects of the movie camera.

H. Discuss and study the elements of illusion in motion pictures.

I. With sample films, commercials, or television, recognize the different shots utilized and try to determine how they were obtained.

J. Using still photographs, zoom, pan, and cut with a movie camera to transform them into "motion pictures".

K. When film is bought or developed there is enclosed an explanation sheet concerned with proper filming and common errors in photography. Study these.

Film Activity #4

Film Animation

Objective: Create a cartoon to be filmed for moving pictures.

A. Decide on an idea and story (keep it simple).

B. Draw some rough sketches of the characters or objects.

C. Study the technique of animation (see film bibliography).

D. Begin drawing the backgrounds and foreground action (these tasks can be separated).

E. Arrange the completed pictures and set up the number of frames each is to be exposed.

F. Set up the lighting and camera for filming.

G. Prepare the titles.

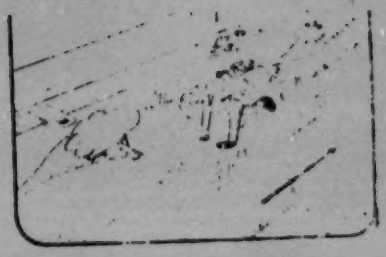
H. Shoot the film.

Alternates

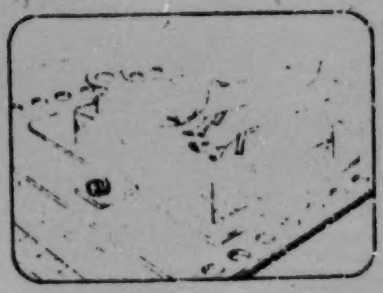
I. The same process can be followed substituting objects (chess set, toys, clay modeling, etc.) for illustrations.

J. Substitute cut-outs for illustrations.

Student Study Sheet
(One Per Student)



CEL ANIMATION



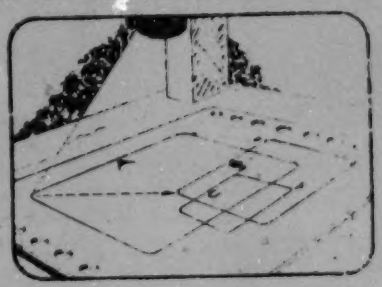
PAPER ANIMATION
Ideal for classroom or home use. Animation films, inexpensive, quick, and highly creative.

SCIENTIFIC TIME LAPSE
Photograph and study slow processes in laboratories, classrooms and homes.

CUT-OUT ANIMATION
Animate magazine, snapshots, comic books, baby pictures, silhouettes, etc. & original art.

SYMBOL ANIMATION
Animate your concepts. Give dynamic illustrations of market strategies, athletic diagrams, work and material flow, etc.

TITLING
Prepare professional live action and stop action titles for your film productions.



FILMOGRAPHY
Live action remote controlled zooms, pans and tracks of professional quality.

Student Study Sheet
(One Per Student)

ANIMATION

It is valuable when equipment or machinery cannot be photographed internally.

With animation, time periods can be shortened or lengthened.

Animation permits a visual treatment of an abstract idea.

Animation can add humor and interest to any subject matter.

Animation may be divided into five general types:

* Limited
* Full
* Nonrealistic
* Full realistic
* Technical

Limited Animation -- Basically static pictures. Only minimum extensive use of cycles, pans, "popping" movements, and cel levels. Best suited for comic effects.

Full -- A separate drawing for each frame (sound 16mm, 24 drawings for each second of screen time).

Full Nonrealistic Animation -- Typical cartoon film. Uses lots of "straight-ahead" animation and moves much more smoothly.

Full Realistic Animation -- Illusion of reality. Most difficult and expensive type of animation. Actual movement rendering often involves filming live actors and duplicating the film frame by frame.

Technical -- Animation using sophisticated animation equipment such as animation stands, pin registration for cels and paper drawings, and techniques like triple-frame animation (See media dictionary).

Film Activity #5

Setting up a movie studio

Objective: As a class or group project divide into areas of special interest and produce a movie.

A. Decide on the subject to be filmed.

B. Break down individual duties much like those in television activity #2. Add new positions where necessary (See Film Careers and Descriptions page).

C. Each group begin work on its facet of the film.

D. Carry the film to completion and project for class evaluation and suggestions for future improvement.

E. If time and money permits, re-do those segments of the film that need improving.

Film Activity #6

Film Genre

Objective: Classify various types of film by creating a list of several categories.

A. Brainstorm to establish titles of films or television shows.

B. Now make a list of the different types involved.

C. List the characteristics of the various genre (categories).

D. Discuss the similarities and differences among the categories.

E. Try to add to the list.

F. Make another list of characteristics which are predominant in these shows (costumes, special effects used, camera angles employed, etc.).

G. Make a new genre listing by combining categories in the original list or creating more specific ones.

Sample List

1. Western 2. Comedy 3. Fantastic 4. Short subjects

5. Drama 6. Musicals 7. Mystery 8. Action and Adventure

9. Documentary 10. Religious themes 11. War themes.

TAPE SPLICING

A modern and simple way to splice 8mm, super 8, and 16mm motion picture film is offered by the Kodak Presstape Universal Splicer. This is a dry splicer: no cement or water is required. The splices are made with pressure-sensitive Kodak Presstape.

This method provides a strong, durable bond and the film can be projected immediately after a splice has been made. The heat from the projector lamp will cure the splice, making it even stronger. Even if the film is not projected for some time, curing will take place within three or four weeks.

CEMENT SPLICING

Film cement contains a solvent that fuses the film ends together. A cement of good quality, such as Kodak Film Cement, should be used.

Directions furnished with your splicer should be followed in scraping and cementing the film. When the film is placed in the splicer, the emulsion (dull) side must be up. It is important that both the emulsion and the coating under it (the binder) be removed completely from the section of film that is to be overlapped in the splicer. Next, the cement should be applied evenly, in a thin layer. The back of the overlapping film strip should be pressed quickly on top of the scraped area. After the splicer has been closed and reopened, excess cement should be wiped off.

Principle of Cement Splicing: illustrations below show the principle involved in cement splicing of motion picture film.

Structure of Motion Picture Film: Film has several layers (figs. 1 and 2). These include:

1. Flexible film base provides a strong and durable support.
2. Emulsion coating consists chiefly of gelatine. In this layer is suspended the silver or dye that forms the photographic image.
3. A microsopically thin layer, or binder, between the base and emulsion coating, binds these two layers tightly together.

CEMENT SPLICING OF MOTION PICTURE FILM

Figure 1 — If a small section of motion picture film were to be magnified to great size, we should see that the film is made up of more than one layer. In the above illustration the thickness of the various layers is exaggerated.

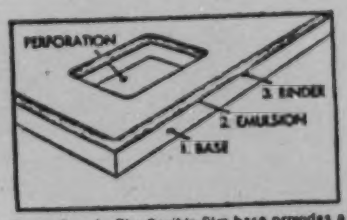


Figure 2 — 1. The flexible film base provides a durable support. 2. The emulsion coating consists chiefly of gelatin, in which is suspended the silver or dye image. 3. A thin layer, or binder, between the base and emulsion binds them tightly together.

Figure 3 — It is impossible to cement the base side of one piece of film to the emulsion of another. The emulsion and binder must first be completely removed so that the two film base surfaces can come in direct contact with each other.

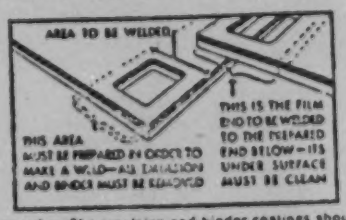


Figure 4 — The emulsion and binder coatings should be moistened with water. This softens the emulsion slightly so that it can be removed easily. The moistened surface should be dry before the film cement is applied.

Film Activity #7

Film Editing and Splicing

Objective: Cut, arrange, and splice film together into a finished product for projection.

A. Cut the film into separate shots as they were filmed.

B. Decide on the order they should follow to compose the final line of action.

C. Splice the units together. Use either tape splice or cement splice.

D. Thread and run through the projector. Re-edit and splice if necessary.

Splicing tape can be obtained from most camera shops. For cement splicing it will be essential to obtain a mechanical splicer (about $6) and cement. An editor-viewer will make the process of viewing and cutting film ends easier. For practice or the pure activity of splicing use old 16 mm film that would normally be discarded.

Film Activity #8

Photo Essay

Objective: Create a story through the combined arrangment of still pictures and written description.

A. Gather various pictures (magazines, still photographs, slides, snapshots, etc.) that can be interpreted in different ways.

B. Look at the pictures and make up a story using part or all of them.

C. Number and arrange the pictures.

D. Construct the story in writing.

E. This can emphasize comedy, seriousness, mood, etc. and the purpose should be stated.

Other Film Activities

Many film related activities could be similar to activities in the television section. Such exercises may have to be modified to fit the film machinery and medium. The most applicable television activities are numbers 2,3,4,5, 6,7, and 8.

SLIDE PRESENTATION

Thorough planning is the key to a high quality sound slide presentation. Every detail should be complete prior to the actual "shooting" of the pictures.

As an example, the music and sound background including voices to be used in the narration, should "fit" the script and the end results to be accomplished.

Under the most ideal circumstances you are apt to shoot one or two hundred pictures to find the 60 or 80 that will make up the final selection.

SLIDE PRESENTATION

PRODUCTION SEQUENCE

I. Planning and Programming
   A. Determine audience
   B. Synopsis - purpose or objective
   C. Research
   D. Budget

II. Script and Story Board
   A. Writing (verbal presentation)
   B. Story Board (pictorial outline of presentation)

III. Artwork
   A. Titles
   B. Background or scenery

IV. Pre-Production Planning
   A. Equipment
   B. Lighting
   C. Actors and Releases

V. Filming

VI. Production
   A. Film Processing
   B. Editing
   C. Sound
   D. Pulsing
   E. Duplication
   F. Storage

VII. Showing the Final Product

Related Communications Areas

Sign Language

Career Descriptions:

Interpreter for the Deaf: Person who translates messages to people for the deaf. (Lawyers, doctors, educators, etc.)

Television Interpreter for the Deaf: Person who translates information on T.V. for the deaf. (ex.: translates tornado warnings, interprets news, relates public service messages.)

In both of these careers, as well as any other related to working with the deaf mute, the person working with the deaf must have a warm and pleasing personality and must be able to relate confidence and trust to that person.

Activity #1

Objective: The student will learn the sign language alphabet.

After mastering the signs for each letter in the alphabet, have the students spell out words, phrases, then whole sentences to each other. The students could be divided into groups of two to set up a competitive atmosphere. Given the same phrase or sentence, the group who successfully translates the sign language to verbage wins.

Activity #2

Objective: The students will participate in a "Signing Bee"

Set up the students into two groups. Conduct the activity the same way as you would a Spelling Bee. Given a word, the student spells it in sign language. The last student standing is the winner.

Activity #3

Objective: In a role playing situation, the student will interpret for a deaf mute who is being interviewed.

This activity needs three people in each group: the interviewer, the interviewee, and the interpreter. If you want the atmosphere as realistic as possible, have the interviewee put cotton or ear plugs in his ear so he can't hear the interviewer ask the questions. The interviewer asks the question and the interpreter converts it to sign language. The interviewee then answers the question in sign language and the interpreter converts it to verbage. Remember, keep the questions short and simple as the students are not going to be experts from the very beginning. Have the students take turns playing the three different roles.

Related Communications Areas

Speaker's Bureau

Career Description:

Serving as a member of any company Speaker's Bureau, a person may prepare and deliver public speeches or presentations to promote, inform, entertain or serve other purposes as prescribed by his company.

Activity #1

Objective: The student will listen to professional members of Speaker's Bureaus.

The teacher may invite members from the Speaker's Bureau of Northwestern Bell Telephone Company or any other company or association to address the class. Following the speech, the class may discuss the skills, techniques and effectiveness of the presentation.

Activity #2

Objective: The student as a member of a Speaker's Bureau will prepare and deliver a speech which has as its purpose the explanation of or promotion of a selected business or industry.

The class may be organized into several Speaker's Bureaus which are made up of any number of students who share interest in some aspect of business or industry. Individually speeches may be prepared and rehearsed until ready for presentation. The polished presentations may be promoted through advertising and delivered throughout the school, perhaps even out of school.

Resources

People

Lynn Gipple, Northwestern Bell

Nancy Adams, Northwestern Bell

APPENDIX

COMMUNICATIONS & MEDIA

RESOURCES

PRINTED MATERIAL

JOURNALISM

English, Earl and Hach, Clarence, Scholastic Journalism. (Ames, Iowa: Iowa State College Press) 1957.

Kohner, Your School Newspaper: How to Plan and Produce It. (Boston: Houghton Mifflin) 1969.

Myers, Arthur, Careers for the 70's Journalism (New York: Crowell-Collier Press) 1971.

Rucker, Frank W. and Williams, Herbert Lee, Newspaper Organization and Management. (Ames, Iowa: Iowa State University Press) 1955.

GRAPHIC ART

Hamm, Jack, Cartooning the Head and Figure, New York: Grossett and Dunlap, 1967.

Hauenstein and Backmeyer, The World of Communications, Bloomington, Illinois: McKnight and McKnight Publishing Co., 1972. (textbook, teacher's guide, activity manual)

Maurello, S. Ralph, Commercial Art Techniques, Tudor Publishing, 1952.

Modern Lettering for Pen and Brush, (Speedball textbook), New Jersey: Hunt Pen Company.

Pocket Pal, International Paper Company, 220 East 42nd Street, New York, N.Y. 10017

Silver, Gerald Al, Modern Graphic Arts Paste-Up, Chicago: American Technical Society, 1968.

PRINTED MATERIAL

GRAPHIC PRODUCTIONS

Books

General Printing, Cleeton-Pitkin-Cornwell, McKnight & McKnight. 1963

Exploring the Graphic Arts, Anthony Marinaccio, 2nd Edition, D. Van Nostrand Company. 1959.

The Practice of Printing, R. W. Polk, Charles A. Bennett Company. 1952.

The Complete Book of Silk Screen Printing Production, J. L. Biegeleisen, Dover Publications. 1963

Kodak Graphic Arts Handbook, The Eastman Kodak Company

Careers in Graphic Reproduction, Earl L. Bedell, D. Van Nostrand Company, Inc. 1965

Aim for a Job in Graphic Design and Art, Fujita, Richards Rosen Press, Inc. 1968

Graphic Arts Encyclopedia, Stevenson, McGraw-Hill Book Co., 1968

Comprehensive Graphic Arts, Ervin A. Dennis, John D. Jenkins, Publisher - Howard W. Sams & Co., Inc., Kansas City

Graphic Learning Network, Addressograph-Multigraph Corporation, 1800 West Central Park, Mt. Prospect, Illinois 60056. Addressograph-Multigraph Corporation, 2411 Grand Avenue, Des Moines, Iowa.

Graphic Communications Series, A. B. Dick Products Company of Des Moines, 1010 Illinois, Des Moines, Iowa

Periodicals

Printing Impressions (Monthly), North American Publishing Co.

Reproductions Methods (Monthly), Gellert Publishing Corp.

Graphic Arts Progress (Monthly), Graphic Arts Research Center, Rochester Institute of Technology

Screen Printing (Monthly), Signs of the Times Publishing Co.

PRINTED MATERIAL

GRAPHIC PRODUCTIONS

Periodicals (cont.)

Communications: Journalism Education Today (Quarterly), Journalism Education Association, Inc.

Books and Pamphlets

Modern Graphic Arts Paste-up, Gerals Silver, American Technical Society, Chicago, Illinois 1968.

The World of Communication, A. Dean Hauenstein and Steven A. Bachmeyer, McKnight and McKnight Publishing Company, Bloomington, Illinois 61801 1972. Teacher's Guide - Student Textbook - Activity Manual.

How to Make a Pinhole Camera, Eastman Kodak Company, Photo Information, Department 841, 343 State Street, Rochester, New York 14650 (Pamphlet - Kodak Publication No. AA-5)

How You Can Make Paper, American Paper Institute, 260 Madison Avenue, New York, New York 10016. (Pamphlet)

The Pocket Pal, International Paper Company (Latest Edition) (This Pocket Pal would be excellent for student's handbook.)

Graphic Arts Procedures, R. Randolph Karch, American Technical Society.

Photo-offset Fundamentals, John E. Cogoli, McKnight and McKnight Publishing Company, Bloomington, Illinois 61701, 1967.

Introduction to the Printing Processes, Published by MEAD PAPERS, a division of the Mead Corporation.

Identification of the Printing Processes, Published by MEAD PAPERS, a division of the Mead Corporation.

RADIO, TELEVISION AND FILM

A-Z of Movie Making, Wolf Rilla, Filmstake, 888 Seventh Avenue, New York, New York, 10019. 1970.

Behind the Camera, Kuhne & Stanley, Filmstake. 1971.

Broadcasting the News, Public Relations Service, National Association of Broadcasters, 1771 N. Street, N.W., Washington, D.C.

Creative Filmmaking, Kirk Smallman, Filmstaks. 1969.

Exploring the Film for Students, Kuhns & Stanley, Filmstaks. 1971

Film and Its Techniques, Raymond Spottiswoode, Filmstaks, 1970.

Film Course Manual, Charles H. Sweeting, Filmstaks, 1971.

Guide to Filmmaking, Edward Pincus, New American Library, Inc., 1301 Avenue of Americanas, New York, N.Y. 10019. 1969.

Handbook of Film Production, Quick & Labau, Filmstaks.

How to Announce for Radio and Television, William Kaufman, Hastings House, 151 E. 50th Street, New York, N.Y. 1956.

How to Make Movies, Robert Gerguson, Filmstaks. 1969.

How to Shoot a Movie Story, Gaskill & Englander, Filmstaks. 1970 revised.

Introduction to Radio and Television, David C. Phillips, Ronald Press, 15 E. 26th Street, New York, N.Y. 1954.

Movies with a Purpose, Eastman Kodak Co., Rochester, New York.

Radio Code, 485 Madison Avenue, New York, N.Y. 10022 (pamphlet)

Television Code, 485 Madison Avenue, New York, N.Y. 10022 (pamphlet)

Technique of Film Animation, rev. ed., Hales & Manvell, Filmstaks.

Technique of Special Effects Cinematography, Raymond Fielding, Filmstaks.

Technique of Television Production, rev. ed., Gerald Millerson, Hastings House. 1970.

Television Production Handbook, Herbert Zettl, Wadsworth Pub. Co., Inc. Belmont, California. 1968.

Television and Radio Announcing, Stuart Hyde, Houghton Mifflin Co., Boston, Mass. 1959.

Successful Radio and Television Advertising, E. F. Seehafer, McGraw-Hill, 330 W. 42nd, New York, N.Y. 1959.

RELATED COMMUNICATIONS AREAS

Talk With Your Hands, Dave O. Wasson

AUDIO-VISUAL - FILMS - FILMSTRIPS

JOURNALISM

Today's Newspaper (Film) 22 min. Color. Oxford Films. Los Angeles, California, 1972 (available from Des Moines Schools Media Center)

GRAPHIC PRODUCTION

Audio-Visual Supplementary Materials

Index to: 35 mm Educational Film Strips
16 mm Educational Films
8 mm Motion Cartridges
Overhead Transparencies
Audi-Visual Market Place

R. R. Bowker Company

Films

Oxford Films, 1136 N. Las Palmas Avenue, Los Angeles, California 09938.

Department of Instructional Media, Des Moines Public Schools, 3415 Cambridge, Des Moines, Iowa 50313.

Graphic Arts Technical Foundation, Inc., 4615 Forbes Avenue, Pittsburg, Pennsylvania 15213.

1. Printing - A Future Unlimited, 16mm,sound,Color, 22 min.
2. Graphic Communications - We Used to Call it Printing, 16mm sound, color, 23 min. 1969.

RADIO, TELEVISION AND FILMS

Films (Free)

Northwestern Bell 1973 Catalog
(two days notice - dial 1-800-362-1824)

Face to Face #813

Hello - I Need to Tell You Something #815

Incredible Machine #771

It Couldn't Be Done #980

Short-term Visual Memory #660

The Speech Chair #692

Area XI Media Center, 112-11th Street, Des Moines, Iowa

RADIO, TELEVISION AND FILMS (cont.)

Area XI Media Center

Number	Title
21100	Animation-A Living Art Form
41530	Art of the Motion Picture
20628	Communications - A First Film
20532	Creating Cartoons
41634	Feilini - A Director's Notebook
41583	Film First - Part I
41584	Film First - Part II
41724	First Flickers
42626	Performing Arts
40737	Radio Waves
41569	Sad Clowns
41568	Slapstick
40988	Television Serves Its Community
41741	Visual Arts
40922	Why Man Creates

AUDIO-VISUAL - FILMS - FILMSTRIPS

RADIO, TELEVISION AND FILMS (cont.)

Films (Buy or Rent)

Pyramid Films

Title	Buy	Rent
An Introduction to Visual Illusion	$200	$15
Basic Film Terms	$175	$18
Frame by Frame - The Art of Animation	$175	$18
Six Filmmakers in Search of a Wedding	$150	$15
Special Effects	$175	$18
The Do-It-Yourself Cartoon Kit	$ 90	$10
The Making of a Life TV Show	$325	$25
The Stunt Man	$160	$15
Televisionland	$175	$15

Others

The Making of Butch Cassidy and the Sundance Kid - Films Incorporated Rental Catalog.

Mini Movie Makers - National Educational Film Center - Sale $140 Rent $15

Other feature films for study may be ordered through various catalogs. See your A-V coordinator for information on these.

HUMAN RESOURCES

RELATED COMMUNICATIONS AREAS

James Hanson: Rehabilitation Center (contact for Deaf Interpreters)

Becky Morgan, Deaf Interpreter, Des Moines, Iowa. Contact through KRNT.

NEW TEXT MATERIALS (1975)

JOURNALISM

Journalism for Today, Donald L. Ferguson and Jim Patten, National Textbook Company, Skokie, Illinois 60076, 1974.

RADIO, TELEVISION AND FILM

Televising Your Message, Wanda Mitchell, National Textbook Company, Skokie, Illinois 60076, 1974.

Communications Careers, A. Dean Hauenstein and Steven A. Bachmeyer, McKnight Introductory Careers Series, McKnight Publishing Company, Bloomington, Illinois 61701, 1975.

Coping With Television, Joseph Fletcher Littel, Editor, McDougal, Littel and Company, Evanston, Illinois, 1973.

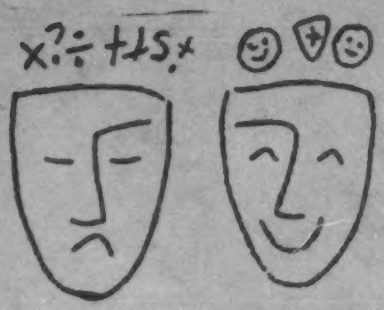
GENERAL COMMUNICATION AND MEDIA MATERIAL

The Turner-Livingston Communication Series, Richard Turner, Follett Publishing Company, Chicago, Illinois, 1974.

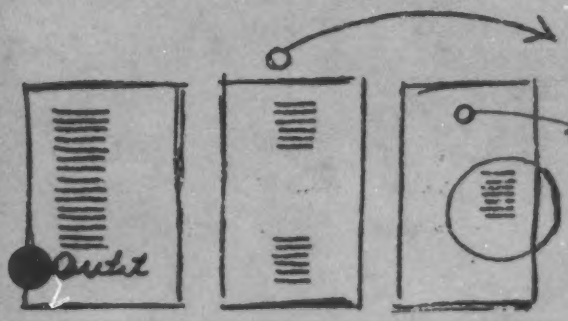
- The Television You Watch
- The Language You Speak
- The Newspaper You Read
- The Movies You See
- The Phone Calls You Make
- The Letters You Write
- Teacher's Guide

SPIRIT MASTERS

Attention getting announcements through cheap or cheaper methods of reproduction.



Think about what you wish to say, then get it down on paper in the form of thumbnail sketches. While doing these sketches, think color, where and what you might want emphasized. If you cannot come up with ideas on your own, search through magazines, other flyers or any where that might serve your purpose.



Thumbnail sketches only suggest layout possibilities, illustration spots and copy space. These do not have to be in detail but only sketchy space and outlines. Lines will indicate where copy will go.

Copy is the information that you want read and acted upon. It can be handwritten, lettered or typed.

Something that will catch the eye and move the mind to wondering what the copy is all about. It is a stimulant for your readers and a shot in the arm for your communique.

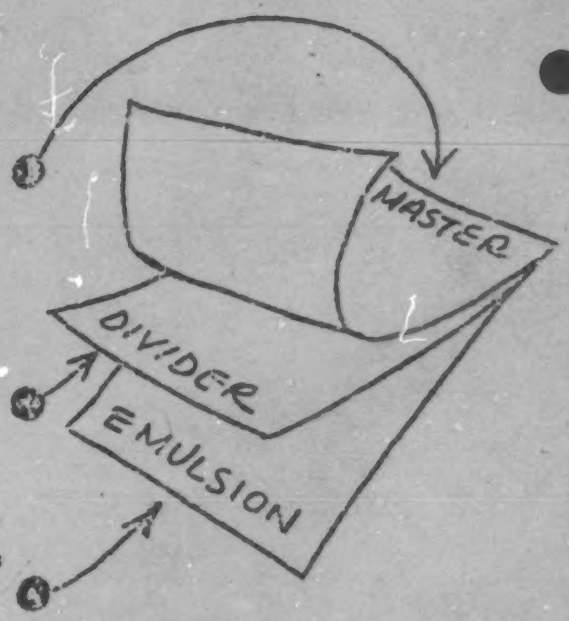
Color is what this whole thing is all about. It is an addition to liven up those purple jobs. Don't knock the purple "jobbies" because with the same layout, planning and some colored paper, you can score again.

Now this is what we're about - dittos or spirit masters. In the trade they are some times called "carbons". Carbons come in five colors at present; purple, the most common, red, green, blue and black.

All of them have things in common, all have something different. All will work spearately, but usually work better in combinations with ole stand-by, purple jobs. Colored carbons are more expensive than purple ones. Colored carbons will not produce many copies per run as the regular purple ones.

211

Let's talk about the common characteristics. First, what is a "Ditto Master"? It is a three-part copying sheet that reproduces any mark that has been picked up from its emulsion sheet.



This sheet is the master. This is where the final and finished work is done. This is the sheet that is used to reproduce, in number, what you have to say. You write on the front and the carbon emulsion is picked up on the back. Any mark you make, without the second sheet in place, will print, unless corrected.

This is a thin waste sheet that protects your "master" from the carbon emulsion. It must be removed in order to make a good master.

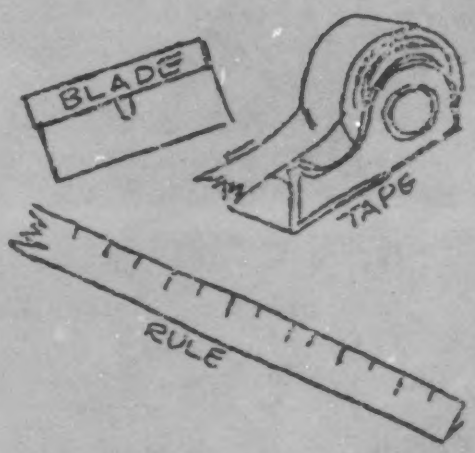
This sheet holds the dyed emulsion which adheres to the back of your master. When mixed with spirit fluid, prints your message.

general info

Any moisture or extreme heat will cause you problems. When wet, the emulsion will run and stain everything with which it makes contact. It will wash off your hand, but it might play havoc with your clothing - especially white things-so handle with care. Heat will cause emulsion to melt into your master. In this case, you might have to start over, or use it as part of your design. So there you have it - the spirit master.

Now it's your turn.
First, you must experiment with spirit masters to gain some personal knowledge. Learn from your mistakes. Experiment with the purple jobs first - they are less expensive.

You can correct the master by scraping the emulsion from the back of the master with a knife or razor blade. Scrape, not cut. Some times transparent tape can be used to cover a spot that is not to be used, or cannot be scraped reasonably clean.



212

A master can be made with a pencil, a ball point, a typewriter or any dull instrument that will not cut the surface of your master.

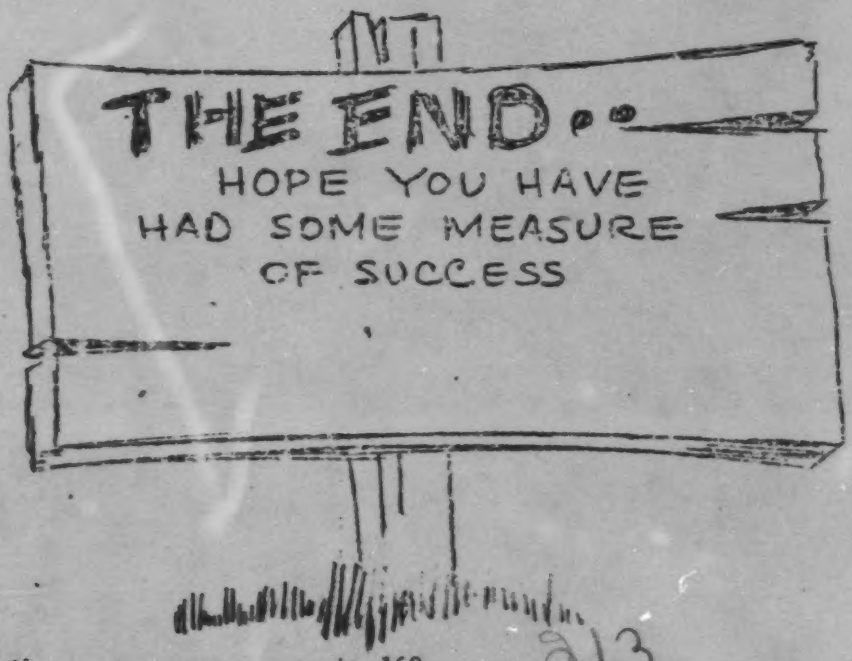
For straight line or to make guidelines for lettering, use a ruler, straight edge or T-square.

Spirit masters break down fast - so a run is good for about 200 prints, that is, with the purple ones. The other colors are only good for about 150.

White paper emphasizes your color carbon usually better than colored paper. But, don't omit colored paper because of that fact.

If you have a heavy hand with your pencil, use a piece of lightweight cardboard or several sheets of regular paper between the divider and your master, so that there will be no carbon pickup. But be sure to remove all dividers when you're ready to do your final art work. These precautions should also be taken when inserting your color carbons.

Hand made masters usually last longer than typewritten ones.



213

pick a FUN thing to do...

GET AN IDEA...
THEN USE IT.!

LOOK IN MAGAZINES, BOOKS, CATALOGS AND DIRECT MAIL FOLDERS FOR DESIGNS & IDEAS THAT CAN BE ADAPTED TO YOUR NEEDS

215

DESIGN YOUR OWN PERSONAL STATIONERY

Here's all you have to do --

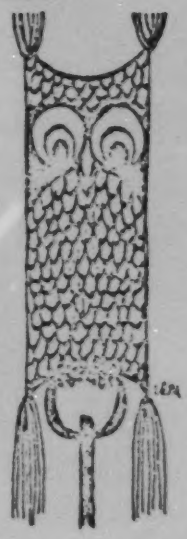
Take a sheet of plain 8½ by 11 paper. With a soft lead pencil (No. 2), lightly draw a line across the page about one-half inch from the top. Draw a second line approximately two inches from the top. Keep these guidelines light because you will erase them when you are finished. Try to keep your design, writing or printing, within this rectangle.

There are no strict rules as far as where you draw or print your design. The above is only a guide to the traditional location of the letterhead. But you can work in the margin, on the bottom of the page - wherever you wish. Just remember to stay at least one-half inch away from the edge of the paper.

Student Study Sheet
(One per student)

DUMB THINGS I GOTTA DO TODAY

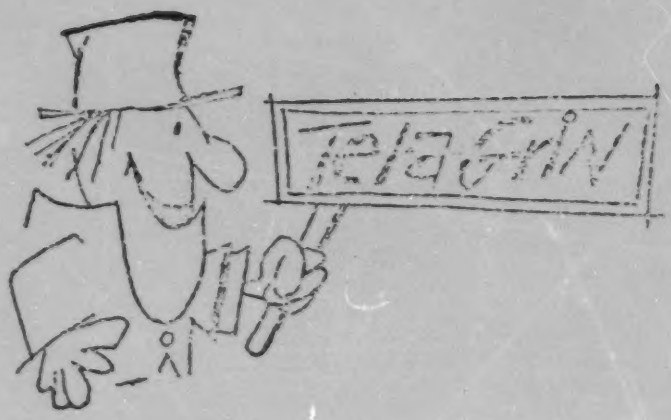
1
2
3
4
5
6
7
8

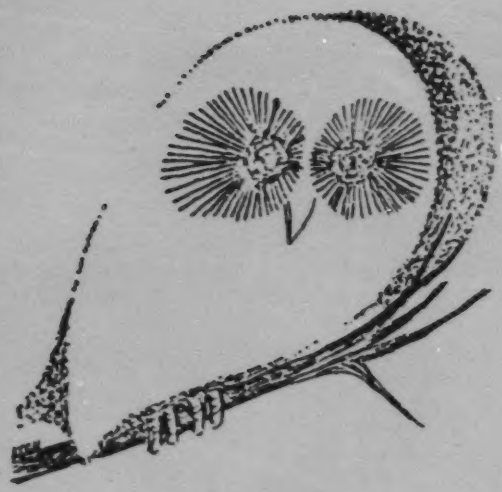


The hand
is the most faithful
device...

...but it always remains an incomplete instrument if not guided by the skill, experience, and - above all - if not completed with up-to-date technical equipment.

These are examples of sheet sizes, layouts and designs for note pads - half sheets, both horizontal and vertical, allowing two images on one sheet; quarter sheets, four images to each sheet.



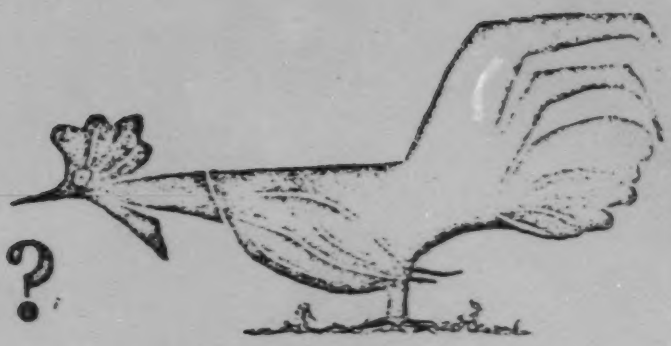


Thank you.

Nice job.

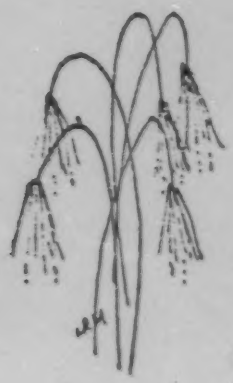
THE MOVING
FINGER WRITES
AND HAVING
WRIT MOVES ON

218



who ?

Thanks...



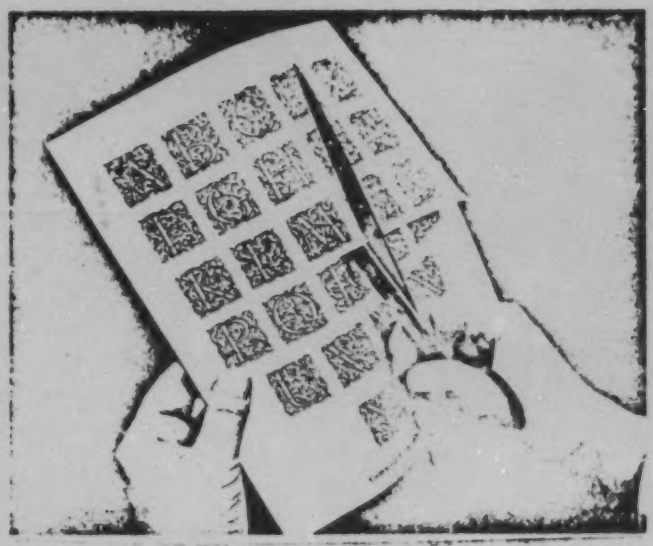
Thanks...

219

(One per student)

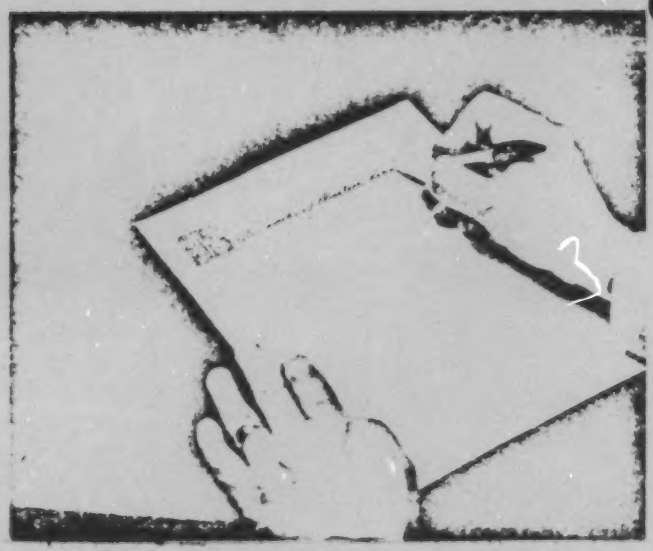
4 EASY STEPS to preparing your own personalized stationery

Keep your design a 1/2" away from the edge of the paper on all sides. Place the guide under your paper to keep art square.



Select a symbol or border design from one of the sheets and cut it out.

Use rubber cement to adhere design in position.



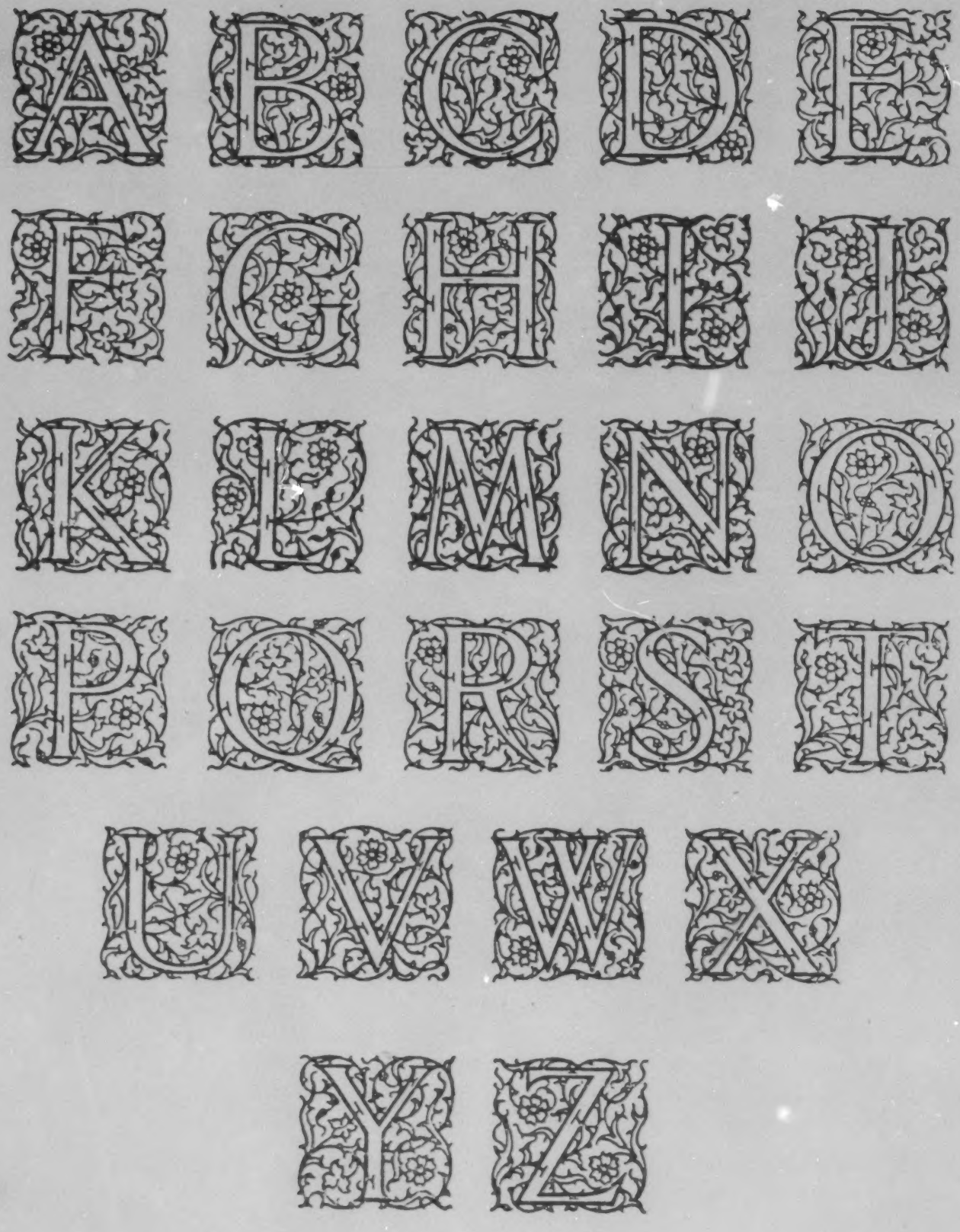
Using a felt pen, you can personalize your stationery or type in the copy with a typewriter for snappy looking print.

and that's it!

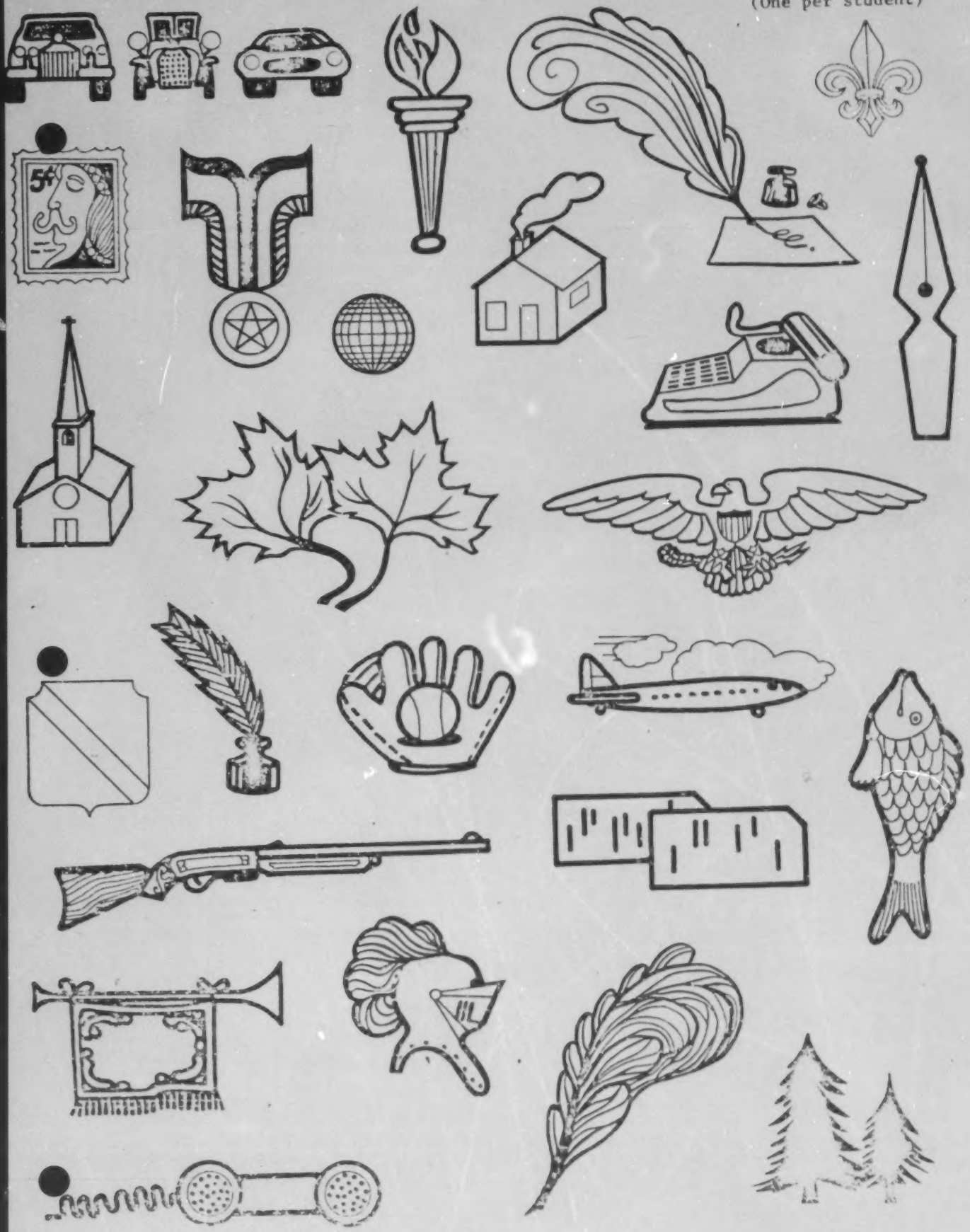
anybody can do it, have fun!

220

(One per student)

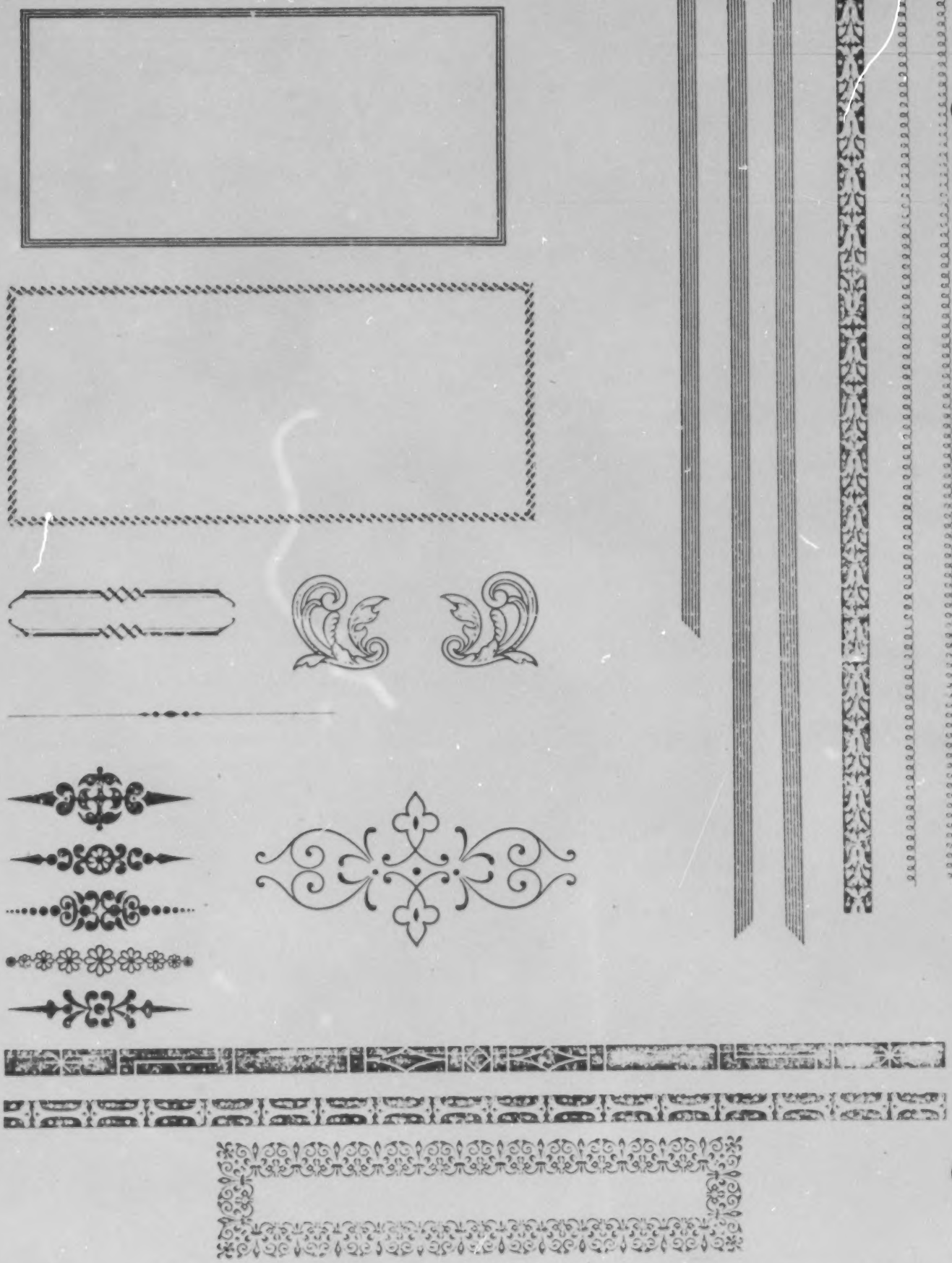


(One per student)



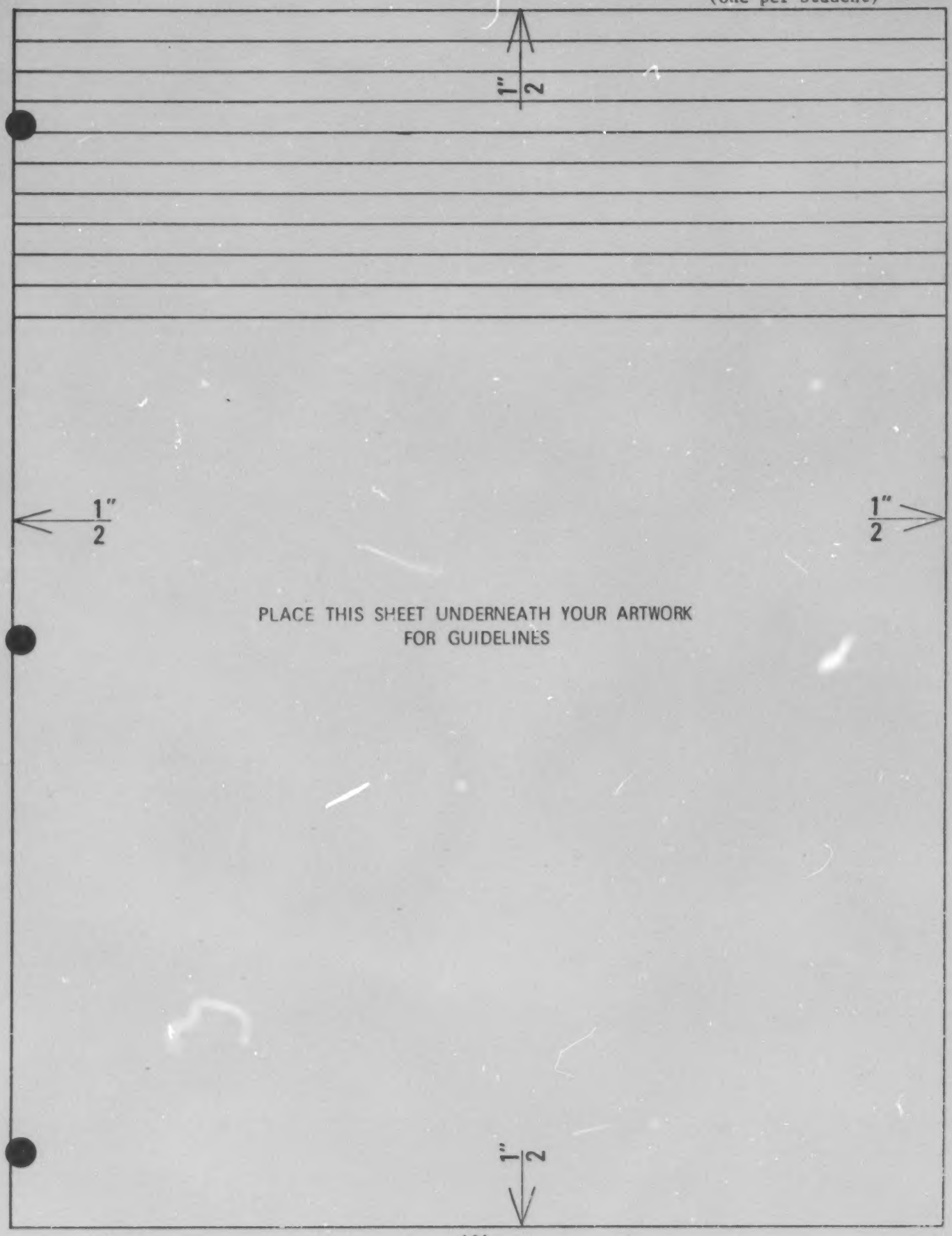
223

(one per student)



224

(One per student)



DOROTHY WISELM

from the Prinns...
891 Lakeshore Blvd., Grosse Point Shores, Mich. 48236

Phyllis Kadlec 2307 Searsdale Avenue Cleveland, Ohio 44109

from Hatch's Hut...
7877 Woods Way Lane, Novelty, O. 44072

Mary Cunningham 104 East 205th Street Euclid, Ohio 44123

ACCESSION NUMBER: VT103472

PUBLICATION DATE: 75

TITLE: VOCATIONAL AGRICULTURE II: A CURRICULUM GUIDE. TENTH GRADE.

PERSONAL AUTHOR: PATTON, BOB; BRAKER, CLIFTON R. (PETE)

DESCRIPTOR: *STATE CURRICULUM GUIDES; *CURRICULUM GUIDES; SECONDARY EDUCATION; *VOCATIONAL AGRICULTURE; *GRADE 10; UNIT PLAN; BEHAVIORAL OBJECTIVES; LEARNING ACTIVITIES; TESTS; TRANSPARENCIES; RESOURCE MATERIALS

IDENTIFIER: *OKLAHOMA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 571P.; THIS CURRICULUM GUIDE WAS WRITTEN IN 1971 BY BOB PATTON AND REVISED IN 1975 BY CLIFTON R. (PETE) BRAKER.

ABSTRACT: THE CURRICULUM GUIDE IS DESIGNED TO PROVIDE A BASIC CORE OF INSTRUCTION IN VOCATIONAL AGRICULTURE IN OKLAHOMA. THE 27 INSTRUCTIONAL UNITS ARE GROUPED ACCORDING TO SIX AREAS: CHEMICALS, LEADERSHIP, SUPERVISED EXPERIENCE PROGRAMS, PLANT AND SOIL SCIENCE, ANIMAL SCIENCE, AND AGRICULTURAL MECHANICS. EACH INSTRUCTIONAL UNIT INCLUDES BEHAVIORAL OBJECTIVES, SUGGESTED ACTIVITIES FOR TEACHER AND STUDENT, INFORMATION SHEETS, ASSIGNMENT SHEETS, JOB SHEETS, TRANSPARENCY MASTERS, A TEST, AND TEST ANSWERS. A SHORT INTRODUCTORY SECTION EXPLAINS USE OF THE GUIDE. (AUTHOR)

INSTITUTION NAME: OKLAHOMA STATE DEPT. OF VOCATIONAL AND TECHNICAL EDUCATION, STILLWATER. CURRICULUM AND INSTRUCTIONAL MATERIALS CENTER.

SPONSORING AGENCY NAME: OKLAHOMA STATE BOARD OF VOCATIONAL AND TECHNICAL EDUCATION, STILLWATER.

VT103 472

OKLAHOMA VOCATIONAL AGRICULTURE EDUCATION

Basic Core Curriculum II

9975
C.1
2

VOCATIONAL AGRICULTURE II

A CURRICULUM GUIDE
Tenth Grade

Written By
Bob Patton
Curriculum Specialist
State Department of Vocational and Technical Education
Stillwater, Oklahoma
1971

Revised By
Clifton R. (Pete) Braker
State Department of Vocational and Technical Education
Stillwater, Oklahoma
1975

Developed by the Curriculum and Instructional Materials Center
For the Division of Vocational Agriculture
BYRLE KILLIAN, STATE SUPERVISOR
OKLAHOMA STATE BOARD OF VOCATIONAL AND TECHNICAL EDUCATION
Leslie Fisher, Chairman
Francis T. Tuttle, Director
Ronald Meek, Coordinator, Curriculum and Instructional Materials Center

Permission to reproduce this copyrighted material in microfiche only has been granted by
Flo Eubanks, Ok. State Dept of Vo-Tech Edu.
to AIM/ARM, ERIC, and organizations operating under agreements with the U.S. Office of Education and National Institute of Education. Further reproduction outside the AIM/ARM and ERIC systems requires permission of the copyright owner.

Copyright 1971 - Revised 1975
Curriculum and Instructional Materials Center

Edited and Distributed by the
State Department of Vocational and Technical Education
Stillwater, Oklahoma 74074

TABLE OF CONTENTS

Section A	Chemicals
Unit I	Agricultural Chemicals
Section B	Leadership
Unit I	Becoming a Good Leader
Unit II	Importance of Public Speaking
Unit III	Developing and Delivering a Speech
Section C	Supervised Experience Programs
Unit I	Analysis and Evaluation of Supervised Experience Programs
Unit II	Farm Credit
Section D	Plant and Soil Science
Unit I	Elementary Study of Soils
Unit II	Soil Conservation Practices
Unit III	Plant Growth and Reproduction
Unit IV	Seed Selection
Unit V	Land Preparation
Unit VI	Chemical Weed Control
Unit Vii	Plant Insect Control
Unit VIII	Plant Diseases
Unit iX	Landscaping
Section E	Animal Science
Unit I	Animal Nutrients
Unit II	Composition and Classification of Feeds
Unit III	Animal Digestion
Unit IV	Maintaining Animal Health
Unit V	Livestock Diseases
Unit VI	Livestock Parasites
Section F	Agricultural Mechanics
Unit I	Drawing and Sketching
Unit II	Position Welding
Unit III	Oxyacetylene Fusion Welding
Unit IV	Oxyacetylene Braze Welding
Unit V	Bill of Material
Unit VI	Plumbing

FOREWORD

This publication is designed to provide a basic core of instruction in vocational agriculture in Oklahoma.

Today, teachers of vocational agriculture are faced with increasing problems of what to teach and whom to serve. The student of today, who will be the agriculturist of tomorrow, needs to be a well-educated individual who is constantly seeking information on which to base the many decisions he is required to make.

The purpose of this guide is to assist teachers in improving instruction in Vocational Agriculture II in Oklahoma.

Appreciation is expressed to the many individuals who helped in the development of this publication. The teaching of vocational agriculture should become more effective with its use.

Francis T. Tuttle, State Director
State Department of Vocational
and Technical Education

Byrle Killian, State Supervisor
Vocational Agriculture

ACKNOWLEDGMENTS

Appreciation is expressed to many individuals who gave their time and knowledge to the preparation of this publication. Without the combined efforts of the State Department of Agriculture, the Department of Agricultural Education, and the teachers of vocational agriculture, this publication would not have been possible.

The contents of the original publication were prepared and reviewed by:

Instructors of Vocational Agriculture

Ralph Thomas
Clifton Braker
Gene DeWitt
A. J. Rexroat
Harold Yoakum
Dale Jackson
Raymond Carey
Troy Farmer
Jim Formby
Larry Harvey
Jim Rucker
Floyd Jacobs
Tom Carey
Wayne Wilhelm
John Kusel
Walon Holt
Kent Pennington
Ron Long
John Dawes
Harold Troutman
Jack Brock
Thomas Joe Ross
Harry Askew
Jerry Standifer

State Department of Vocational Agriculture Staff

Ralph Dreessen
Cleo Collins
Benton Thomason
Hallard Randell
John Jones
Don Brown
Joe Raunikar
Paul Newlin

Teacher Education Staff
Oklahoma State University

Dr. Robert Price
Dr. Robert Terry
Dr. Jack Pritchard
Dr. James Key
Professor George Cook

Other contributors were:

Dale Cotton, Public Information Officer
State Department of Vocational and Technical Education

Glen Starcher, Assistant Public Information Officer
State Department of Vocational and Technical Education

Robert Noble, Professor, Animal Science
Oklahoma State University

David A. Sanders, Assistant Professor, Agronomy
Oklahoma State University

Newton W. Flora, Extension Entomologist
Oklahoma State University

Steve Ownby, Assistant Professor, Horticulture
Oklahoma State University

Harold Mendenhall, National Welding Instructor
Smith Welding Company, Minneapolis, Minnesota

Ben Walcott, Lincoln Electric Company
Oklahoma City, Oklahoma

Marcus Juby, Graduate Student, Agricultural Education Department
Oklahoma State University

Typists, machine operators, and others who assisted in the project were:

Mrs. Diane Morgan
Curriculum and Instructional Materials Center

Mrs. Becki Stringer
Curriculum and Instructional Materials Center

Miss Amy Barnard
Curriculum and Instructional Materials Center

Miss Susan Pace
Curriculum and Instructional Materials Center

Mrs. Lisa Morris
Curriculum and Instructional Materials Center

Mr. Noel Wilcox, Mrs. Jeanette Sneed, and Mrs. Jeanie Cavett
Printing and Publications Department
State Department of Vocational and Technical Education

Special appreciation goes to Charles Brannon, Media Specialist, Curriculum and Instructional Materials Center, for the illustrations and drawings used in this publication.

Gratitude is expressed to Mrs. Frances Braden for editing this publication and to Mrs. Beverly Sloan, Librarian, for her assistance in securing research material.

This publication was written by Bob Patton, Agriculture Curriculum Specialist, State Department of Vocational and Technical Education.

The contents of the revised publication were prepared and reviewed by:

Eugene Henderson
Zeb Johnson
Walon Holt
Jack Brock
Gene DeWitt
Harold Yoakum
Larry Harvey
Haskell Morgan
Ron Long
Jerry Standifer
Paul Evans
Larry Winnett
Larry Troyer
Jerry Ott
Greg Pierce
Wayne Wilhelm
Ed Tippens
Frank McCalla
A.J. Rexroat
Jim Formby
Harold Biffle
Mac DeVilbiss
Harry Askew
Dale Turner
Avel Henneke
Cecil Cox
Willard Bradley
Kenny Cundiff
Raymond Cockrum
Kent Pennington
Eddie Smith

State Department of Vocational Agriculture Staff

Byrle Killian
Ralph Dreessen
Cleo Collins
Don Brown
Paul Newlin
John Jones
Verlin Hart
Joe Raunikar
Bob Mitchell

Teacher Education Staff
Oklahoma State University

Dr. Robert R. Price
Dr. Robert Terry
Dr. Jack Pritchard
Dr. James Key
Professor George Cook
Clifton Braker

Other contributors were:

Dean Reeder, Assistant Superintendent
Indian Meridian Area Vocational and Technical School
Stillwater, Oklahoma

Dr. Robert Noble, Professor
Animal Science and Industries
Oklahoma State University
Stillwater, Oklahoma

Dr. Jerry Coakley, Assistant Professor of Entomology
Oklahoma State University
Stillwater, Oklahoma

Dr. Robert Reed, Professor of Soils
Oklahoma State University
Stillwater, Oklahoma

Paul Mitchell, Extension Horticulture Specialist
Oklahoma State University
Stillwater, Oklahoma

Dr. Joe Hughes, Extension Livestock Specialist
Oklahoma State University
Stillwater, Oklahoma

Dr. W.E. Brock, Dean
College of Veterinarian Medicine
Oklahoma State University

Gratitude is expressed to Sheila Stone for editing; to Nancy Skach and Debbie Burchette for assistance with research; and to Cindy Johnson, Brenda Risner, and the Communications Center for typing.

Much credit goes to Bob Rea, Media/Graphics Designer; Dean Clark and Mike Adair, Illustrators; and Beth Akins, Paste-up Artist, for the illustrations and drawings used in the publication.

The printing staff of the State Department of Vocational and Technical Education is deserving of much credit for printing this publication.

Special appreciation is extended to Bob Patton, Assistant Coordinator, for the Oklahoma Curriculum and Instructional Materials Center for his counseling and assistance.

Clifton R. (Pete) Braker
Agriculture Curriculum Specialist

INTRODUCTION

Vocational education in agriculture has changed. Fewer students each year are returning to the farm and more are entering fields of related agricultural occupations. Teachers of vocational agriculture are faced with the problem of teaching subject matter areas in which they have limited experience and little or no available instructional materials. This has created a challenge for curriculum personnel. The Curriculum and Instructional Materials Center of the State Department of Vocational and Technical Education has accepted the challenge.

In 1968, the Basic Core Curriculum Guide was developed outlining four years of instruction in vocational agriculture. From this basic guide, units of instruction have been developed for Vocational Agriculture II to cover six sections: Agricultural Chemicals, Leadership, Supervised Experience Programs, Plant and Soil Science, Animal Science, and Agricultural Mechanics. The instructional units are designed to account for sixty percent of an instructor's time in teaching vocational agriculture. The remaining forty percent is left to the individual instructor according to the demands of his local community.

Use of This Publication

The approach taken in this publication is unique and quite new. Teachers, before attempting to teach from this material, should become familiar with it and should understand the writer's ideas. This introduction is for the teacher's benefit and explains the most effective use of the publication.

Instructional Units

Each instructional unit includes objectives, suggested activities, information sheets, assignment sheets, job sheets, transparency masters, a test, and answers to the test.

Objectives (White)

Included in each unit of instruction are measurable objectives. These objectives state the goals of the course in such a way that both teacher and student will know the changes in behavior expected to occur as a result of the instruction. In short, objectives are a means of providing a sense of direction and accomplishment for the student.

The measurable objectives are stated in two forms: Terminal Objectives stating the subject matter to be covered in a unit of instruction; Specific Objectives stating the performance of the student in order to reach the terminal objective. Specific objectives are most important in regard to teaching the unit. Before attempting to teach a unit, terminal and specific objectives must be explained to the student in order to tell him what is expected.

Suggested Activities (White)

Each unit of instruction has a Suggested Activities Sheet outlining steps to follow in accomplishing the specific objectives. The activities relate the duties of the instructor to the particular unit. Duties may vary according to the unit and usually include the following: provide students with information sheet and job sheets, make transparencies, discuss terminal and specific objectives, discuss information sheet, and give test. Teachers are encouraged to use any additional activities and means of accomplishing objectives.

Information Sheet (Green)

The information sheet contains essential facts necessary for the teaching of a unit of instruction. These sheets should be given to the student. Information sheets can be reproduced at the local school or ordered from the Curriculum Center.

Assignment Sheets (Tan)

Assignment sheets are included in units when necessary. An assignment sheet allows the student to practice a written skill, such as calculating board feet, before the evaluation is given.

Job Sheets (Blue)

Job sheets are included in units when necessary. A job sheet gives operations necessary to successfully complete a production job. It contains the name of the job, drawings, materials, equipment and tools needed, and procedures for completing a job.

Transparency Masters (White)

Transparency masters are charts, pictures, or illustrations printed for use in making overhead transparencies. These are included in units when necessary. A transparency should be made from the transparency master and be shown on an overhead projector to supplement the information.

Test (Yellow)

A test is included at the close of each unit of instruction to test for the specific objectives.

Answers to Test (Pink)

Test answers are provided for each unit. These may be used by the teacher and/or student for checking student achievement of the objectives.

Page Numbering System

Each section in this publication is assigned a specific letter: (A) Agricultural Chemicals; (B) Leadership; (C) Supervised Experience Programs; (D) Plant and Soil Science; (E) Animal Science; (F) Agricultural Mechanics. Pages are numbered consecutively within each section. If the page is available as a transparency master, TM appears at the bottom of the page.

(NOTE: This publication will provide unity of instruction throughout Oklahoma in teaching vocational agriculture. The effectiveness of the publication will depend on you as an instructor.)

AGRICULTURAL CHEMICALS
UNIT I

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to name pests on which chemicals are used and list ways chemicals enter the body and safety rules to observe when using and storing chemicals. The student should be able to properly dispose of empty chemical containers and select proper protective clothing and accessories when using chemicals. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with agricultural chemicals to the correct definitions.
2. Name five major types of pests on which chemicals are used.
3. Select from a list items that all chemical labels must contain.
4. List three general safety rules to follow before attempting to use chemicals.
5. Explain in writing the responsibility of a land grant college in regard to agricultural chemicals.
6. Select from a list three benefits from using chemicals.
7. Describe three types of insecticides and how each works.
8. List three methods by which chemicals enter the body.
9. List three safety precautions to follow when storing chemicals.
10. List two means of disposing of empty chemical containers.
11. Select from a list proper clothing and accessories necessary for the protection of anyone handling chemicals.

AGRICULTURAL CHEMICALS
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Make transparencies.

D. Collect chemical container labels for use in the classroom.

E. Discuss terminal and specific objectives.

F. Discuss information sheet.

G. Discuss chemical labels on containers.

H. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Take additional notes.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this test:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Key Words on Labels
2. TM 2--Key Words on Labels (Continued)
3. TM 3--Proper Clothing and Accessories

D. Test

E. Answers to test

II. References:

A. Flora, Newton W. "Pesticides Can Be Used Safely." *OSU Extension Facts.* Stillwater: Oklahoma State University.

B. _____. "Check Your Pesticide Labels." *OSU Extension Facts.* Stillwater: Oklahoma State University.

C. _____. "Laws Governing Safe Use of Chemicals." *OSU Extension Facts.* Stillwater: Oklahoma State University.

D. "Handling and Using Agricultural Chemicals Safely." Urbana, Illinois: Vocational Agriculture Service, University of Illinois.

AGRICULTURAL CHEMICALS
UNIT I

INFORMATION SHEET

I. Terms and definitions

A. Nematode--Small roundworm which lives in the soil and frequently enters the plants through the roots

B. Pesticide--Substance or mixture used for destroying or repelling such pests as insects, rodents, nematodes, weeds, and brush

C. Herbicide--Chemical substance used to kill herbaceous plants

D. Insecticide--Chemical substance used to kill or repell insects such as flies and grasshoppers

E. Rodenticide--Chemical substance or mixture of substances used to control rats, mice, and other rodents

F. Defoliant--Any substance or mixture of substances used to cause leaves or foliage to drop from plants, generally to facilitate harvesting

G. Fungicide--Chemical substance used to control fungi

H. Antibiotic--Any chemical or chemicals produced by living organisms that help alleviate or control bacterial diseases

I. Plant regulator--Any substance or mixture of substances that affects growth rate or other behavior of plants through physiological action

J. Poison--Substance which, if introduced into an organism in relatively small amounts, may chemically produce an injurious or deadly effect

K. Toxicity--Degree of poisonousness of a substance

L. Absorption--Process occurring when the material gains entry into the bloodstream

M. Acute exposure--Inhalation or absorption of large amounts of chemicals in a short period of time

N. Chronic exposure--Inhalation or absorption of relatively small amounts of poison over a long duration (days, months, or years)

O. Hazard--Danger or probability that injury will result from the use of a substance in a given quantity and manner

P. Safety--Practical certainty that injury will not result from the use of a given substance

INFORMATION SHEET

II. Major types of pests

A. Weeds

B. Insects

C. Diseases

1. Bacteria

2. Viruses

3. Fungi

D. Rodents

E. Nematodes

III. Items that all chemical labels must contain

A. POISON, skull and crossbones on hazardous substances (Transparency 1)

B. DANGER on highly toxic products (Transparency 1)

C. Caution or warning on products that can cause illness or injury (Transparency 2)

D. Name and address of manufacturer

E. Statement of net contents

F. Ingredients

G. Directions for use

H. Precautionary statements for using

I. Date of expiration

J. Antidote

IV. Safety rules to follow before attempting to use chemicals

A. Read labels before using

B. Use only when necessary

C. Use according to recommendation

D. Avoid spray and dust drift

INFORMATION SHEET

E. Keep away from livestock

F. Cover feed and water containers when using

V. Land grant college's responsibility in regard to agricultural chemicals

A. Research

B. Development

C. Dissemination of information

VI. Benefits from using chemicals

A. Increases production

B. Reduces loss caused from pests

C. Controls undesirable vegetation

1. Grass

2. Weeds

3. Brush

D. Acts as defoliant

VII. Types of insecticides and how each works

A. Stomach poison--Must enter the digestive tract of the insect before becoming effective

B. Contact poison--Can enter the insect by means other than the digestive tract

C. Repellent--Does not kill most insects although may injure certain types

VIII. Methods by which chemicals enter the body

A. Absorption through the skin

B. Swallowing

INFORMATION SHEET

C. Absorption by breathing

D. Absorption through the eyes

IX. Safety precautions for storing chemicals

A. Store in original containers

B. Store away from children

C. Store away from feed

D. Store in a cool, dry area

E. Store in a locked cabinet

X. Means of disposing of empty containers

A. Burning

(CAUTION: Hazardous fumes may be given off when burned.)

B. Burying

XI. Proper protective clothing and accessories (Transparency 3)

A. Rubber gloves

B. Rubber boots

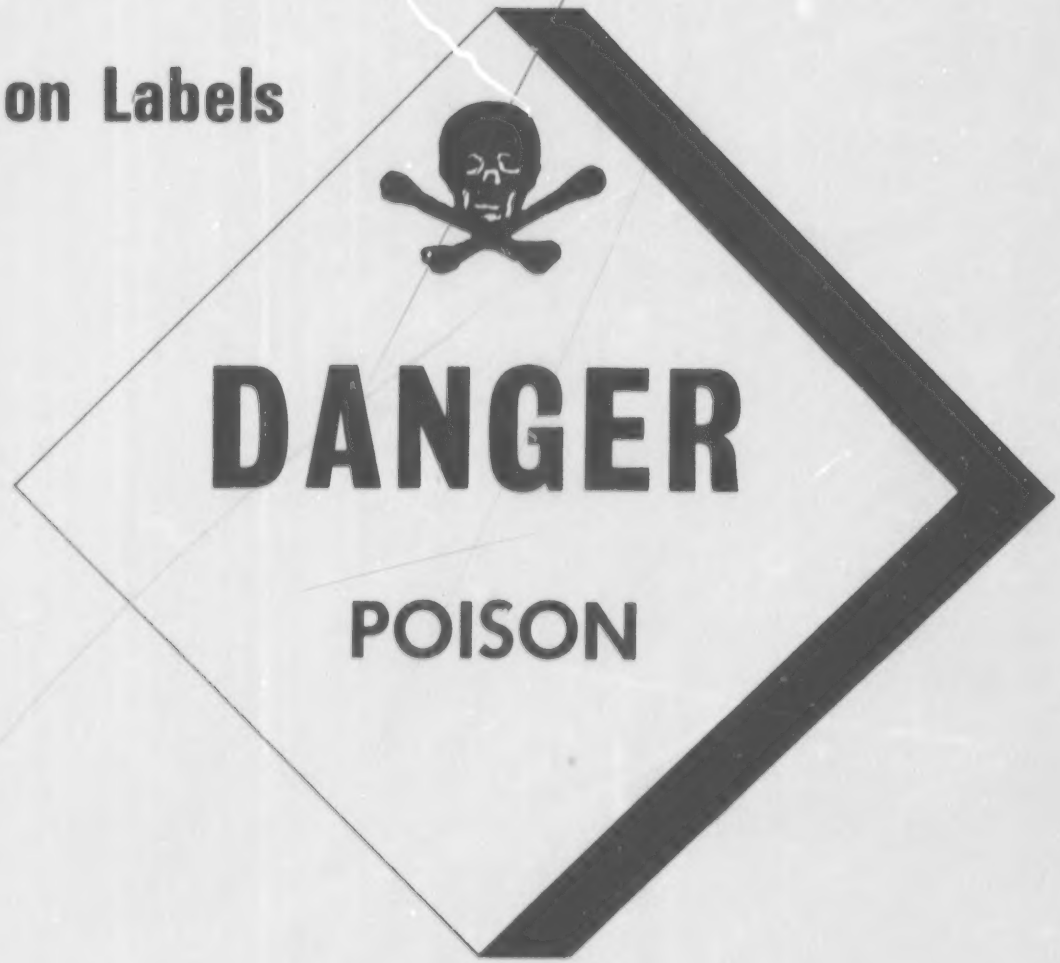
C. Safety goggles

D. Breathing apparatus (respirator)

E. Head protection

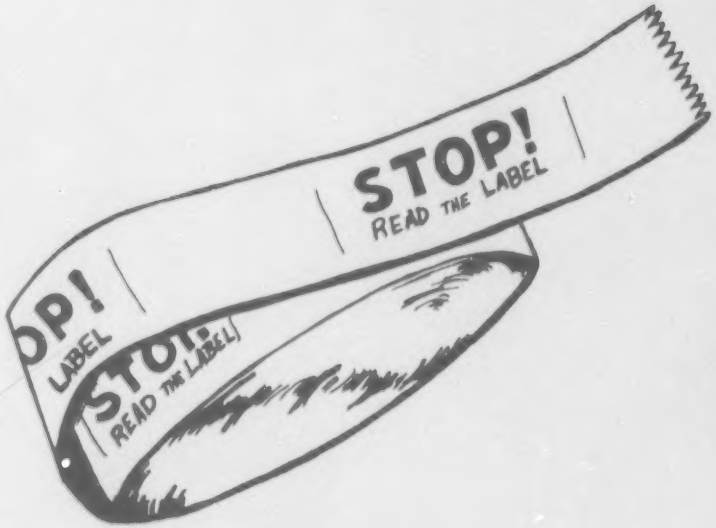
F. Rubber apron or slicker suit

Key Words on Labels



Key Words on Labels

(Continued)



22

Proper Clothing And Accessories

23

AGRICULTURAL CHEMICALS
UNIT I

TEST

1. Match the terms on the right to the correct definition.

_____a. Any substance or mixture of substances used to cause leaves or foliage to drop from plants, generally to facilitate harvesting

_____b. Small roundworm which lives in the soil and frequently enters the plants through the roots

_____c. Chemical substance used to control fungi

_____d. Any chemical or chemicals produced by living organisms that help alleviate or control bacterial diseases

_____e. Chemical substance used to kill or repell insects such as flies and grasshoppers

_____f. Substance which, if introduced into an organism in relatively small amounts, may chemically produce an injurious or deadly effect

_____g. Process occurring when the materials gain entry into the bloodstream

_____h. Practical certainty that injury will not result from the use of a given substance

_____i. Inhalation or absorption of large amounts of chemicals in a short period of time

_____j. Degree of poisonousness of a substance

_____k. Danger or probability that injury will result from the use of a substance in a given quantity and manner

_____l. Any substance or mixture of substances that affects growth rate or other behavior of plants through physiological action

1. Pesticide
2. Rodenticide
3. Antibiotic
4. Acute exposure
5. Safety
6. Nematode
7. Defoliant
8. Plant regulator
9. Chronic exposure
10. Herbicide
11. Fungicide
12. Toxicity
13. Absorption
14. Insecticide
15. Poison
16. Hazard

_____m. Inhalation or absorption of relatively small amounts of poison over a long duration (days, months, or years)

_____n. Substance or mixture used for destroying or repelling such pests as insects, rodents, nematodes, weeds, and brush

_____o. Chemical substance used to kill herbaceous plants

_____p. Chemical substance or mixture of substances used to control rats, mice, and other rodents

2. Name five major types of pests on which chemicals are used.

a.

b.

c.

d.

e.

3. Select from the list below the items that all chemical labels must contain by placing an "X" in the blanks.

_____a. Antidote

_____b. Ingredients

_____c. Inventor's name

_____d. Date of expiration

_____e. Date chemicals were identified

_____f. Directions for use

_____g. Date container was made

_____h. Name and address of manufacturer

_____i. Date manufactured

_____j. Statement of net contents

_____k. per pound of chemical

4. List three general safety rules to follow before attempting to use chemicals.

   a.

   b.

   c.

5. Explain in writing the responsibility of a land grant college in regard to agricultural chemicals.

6. Select from the list three benefits from using chemicals by placing an "X" in the blanks.

   _____a. Eradicates disease

   _____b. Increases production

   _____c. Eradicates screwworm

   _____d. Controls undesirable vegetation

   _____e. Acts as defoilant

7. Describe three types of insecticides and how each works.

   a.

   b.

c.

8. List three methods by which chemicals enter the body.

a.

b.

c.

9. List three safety precautions to follow when storing chemicals.

a.

b.

c.

10. List two means of disposing of empty chemical containers.

a.

b.

11. Select from the list below proper clothing and accessories necessary for the protection of anyone handling chemicals by placing an "X" in the blanks.

_____a. Rubber gloves

_____b. Clean water

_____c. Safety goggles

_____d. Rubber apron or slicker suit

_____e. Head protection

_____f. Breathing apparatus (respirator)

AGRICULTURAL CHEMICALS
UNIT I

ANSWERS TO TEST

1.	a. 7	e. 14	i. 4	m. 9
	b. 6	f. 15	j. 12	n. 1
	c. 11	g. 13	k. 16	o. 10
	d. 3	h. 5	l. 8	p. 2

2. a. Weeds
   b. Insects
   c. Diseases
   d. Rodents
   e. Nematodes
3. a, b, d, f, h, j
4. Any three of the following:
   a. Read labels before using
   b. Use only when necessary
   c. Use according to recommendation
   d. Avoid spray or dust drift
   e. Keep away from livestock
   f. Cover feed and water containers when using
5. Explanation should include:
   a. Research
   b. Development
   c. Dissemination of information
6. b, d, e

7. Description should include:

   a. Stomach poison--Must enter the digestive tract of the insect before becoming effective

   b. Contact posion--Can enter the insect by means other than the digestive tract

   c. Repellent--Does not kill most insects although may injure certain types

8. Any three of the following:

   a. Absorption through the skin

   b. Swallowing

   c. Absorption by breathing

   d. Absorption through the eyes

9. Any three of the following:

   a. Store in original containers

   b. Store away from children

   c. Store away from feed

   d. Store in a cool, dry area

   e. Store in a locked cabinet

10. a. Burning

    b. Burying

11. a, c, d, e, f

BECOMING A GOOD LEADER
UNIT I

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to define leadership and list characteristics of a good leader. He should be able to discuss the importance of being a good leader and list values of having leadership abilities. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Define leadership.
2. List five characteristics of a good leader.
3. Discuss in a short paragraph the importance of being a good leader.
4. Select from a list steps to take in order to become a good leader.
5. List five values of having leadership abilities.
6. List seven items in the FFA code of ethics.
7. Rate himself as a leader after taking the Personality Self-Rating Scale.
8. Select leaders within his community, listing traits that make them leaders.

BECOMING A GOOD LEADER
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Discuss terminal and specific objectives.

D. Discuss information and assignment sheets.

E. Help evaluate the student according to the Personality Self-Rating Scale.

F. Use outside resource persons knowledgeable in the area of leadership.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take notes.

C. Complete assignment sheets.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Assignment sheets

1. Assignment Sheet #1--Personality Self-Rating Scale

2. Assignment Sheet #2--Selecting Leaders Within Your Community

D. Test

E. Answers to test

II. References:

A. *Official Manual.* Alexandria, Virginia: The Future Farmers of America, 1974.

B. Gray, Jarrell D. and J.R. Jackson. *Leadership Training and Parliamentary Procedure for FFA.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1958.

C. Wells, Kenneth A. *Becoming A Good Leader.* Chicago: Science Research Association, Inc., 1973.

BECOMING A GOOD LEADER
UNIT I

INFORMATION SHEET

I. Leadership--Combination of qualities which inspire confidence, draw others toward the leader, and cause them to follow

II. Characteristics of a good leader

A. Faith in people and desire to work with them

B. Poise and confidence

C. Preplanning of the program so the meeting moves with dispatch

D. Interested and alert

E. Democratic in dealing with group members

F. Fair and impartial

G. Patient, optimistic, and gives credit for work done

H. Sensitive to the individuals and recognizes individual differences

I. Sense of humor to relieve the tension of a serious meeting

J. Realization that his responsibility is to let others share responsibilities

K. Belief in the organization

L. Desire to be a team member

III. Importance of being a good leader

A. Leadership needed in all fields

B. Challenge to learn leadership

C. Respect created for others

D. Maturation of individual

IV. Steps in becoming a good leader

(NOTE: Leaders are made, not born.)

A. Study qualities of a good leader

B. Evaluate strong and weak points of oneself

INFORMATION SHEET

C. Become a good follower

D. Develop a plan for training oneself as a leader

V. Values of having leadership abilities

A. Education

B. Respect

C. Advancement in an occupation

D. Financial betterment

E. Pride

F. Security

VI. FFA code of ethics

A. Dress neatly and appropriately for the occasion

B. Show respect for rights of others and be courteous at all times

C. Be honest and do not take unfair advantage of others

D. Respect the property of others

E. Refrain from loud, boisterous talk, swearing, and horseplay

F. Demonstrate sportsmanship in the show ring, judging contests, and meetings

G. Be modest in winning and generous in defeat

H. Attend meeting promptly and respect the opinions of others in discussion

I. Take pride in the organization, activities, farming programs, exhibits, and the occupation of farming and ranching

J. Share with others the experiences and knowledge gained by attending state and national meetings

BECOMING A GOOD LEADER
UNIT I

ASSIGNMENT SHEET #1--PERSONALITY SELF-RATING SCALE

Circle the appropriate number following each trait. Four is outstanding, three is above average, two is average, one is poor. Total your score on the following page.

1.	Do I maintain a well-groomed appearance?	1	2	3	4
2.	Do I have a pleasing voice?	1	2	3	4
3.	Is my posture alert and poised?	1	2	3	4
4.	Is my disposition cheerful?	1	2	3	4
5.	Do I make friends easily?	1	2	3	4
6.	Do I exert a positive leadership?	1	2	3	4
7.	Am I generally thoughtful of the feelings of others?	1	2	3	4
8.	Is my enthusiasm sincere and contagious?	1	2	3	4
9.	Do I persevere until I achieve success?	1	2	3	4
10.	Am I sincere in my interest in other people?	1	2	3	4
11.	Am I ambitious to get ahead?	1	2	3	4
12.	Do I get along well with others?	1	2	3	4
13.	Do I react constructively to criticism?	1	2	3	4
14.	Do I remember names and faces?	1	2	3	4
15.	Am I punctual on all occasions?	1	2	3	4
16.	Do I have and evidence a spirit of cooperation?	1	2	3	4
17.	Am I free from prejudice?	1	2	3	4
18.	Do I know how people react in most situations?	1	2	3	4

ASSIGNMENT SHEET #1

19.	Am I generally a good listener?	1	2	3	4
20.	Do I refuse to be hurt by what other people say?	1	2	3	4
21.	Can I criticize without giving offense?	1	2	3	4
22.	Do I usually like people for what they are, or do I wait to see if they like me?	1	2	3	4
23.	Do I enjoy being part of a group?	1	2	3	4
24.	Am I reliable?	1	2	3	4
25.	Can I adapt myself to all situations?	1	2	3	4
26.	Am I easily discouraged?	1	2	3	4
27.	Do I apply myself to the problems of each day?	1	2	3	4
28.	Can I make a decision quickly and accurately?	1	2	3	4
29.	Am I loyal to my superiors and associates?	1	2	3	4
30.	Do I try to get the other fellow's point of view?	1	2	3	4
31.	Am I neat and clean in my work as well as my personal appearance?	1	2	3	4
32.	Do I know where I make my mistakes, and do I admit them?	1	2	3	4
33.	Am I looking for opportunities to serve others better?	1	2	3	4
34.	Am I following a systematic plan for improvement and advancement?	1	2	3	4
35.	Can I accept honors and advancements and yet keep my feet on the ground?	1	2	3	4
36.	Am I playing the game of life honestly and fairly with myself, my fellow members, and others with whom I work?	1	2	3	4

TOTAL SCORE_____

ASSIGNMENT SHEET #1

Evaluation of Assignment Sheet #1

Evaluate your scores--If your score totaled over 100, your personality rating is definitely superior. If you've been honest with yourself, you are among the people who are most likely to succeed. A score of 90 - 100 is above average; 75 - 90 is average; below 75 shows plenty of room for improvement. How did you rate?

BECOMING A GOOD LEADER
UNIT I

TEST

1. Define leadership.

2. List five characteristics of a good leader.

   a.

   b.

   c.

   d.

   e.

3. Discuss in a short paragraph the importance of being a good leader.

4. Select from the list below steps to take in order to become a good leader by placing an "X" in the blanks provided.

   _____a. Study qualities of a good leader

   _____b. Develop a plan for training oneself as a leader

   _____c. Be proud and boisterous about one's leadership ability

   _____d. Use "I" instead of "we" when telling about the organization

5. List five values of having leadership abilities.

   a.

   b.

   c.

   d.

   e.

6. List seven items in the FFA code of ethics.

   a.

   b.

   c.

   d.

   e.

   f.

   g.

7. Rate yourself as a leader after taking the Personality Self-Rating Scale.

8. Select leaders within your community, listing traits that make them leaders.

   (NOTE: If activities 7 and 8 have not been accomplished prior to the test, ask the instructor when they should be completed.)

BECOMING A GOOD LEADER
UNIT I

ANSWERS TO TEST

1. Combination of qualities which inspire confidence, draw others toward the leader, and cause them to follow

2. Any five of the following:

   a. Faith in people and desire to work with them

   b. Poise and confidence

   c. Preplanning of the program so the meeting moves with dispatch

   d. Interested and alert

   e. Democratic in dealing with group members

   f. Fair and impartial

   g. Patient, optimistic, and gives credit for work done

   h. Sensitive to the individuals and recognizes individual differences

   i. Sense of humor to relieve the tension of a serious meeting

   j. Realization that his responsibility is to let others share responsibilities

   k. Belief in the organization

   l. Desire to be a team member

3. Discussion should include:

   a. Leadership needed in all fields

   b. Challenge to learn leadership

   c. Respect created for others

   d. Maturation of individual

4. a, b

5. Any five of the following:

   a. Education

   b. Respect

c. Advancement in an occupation

d. Financial betterment

e. Pride

f. Security

6. Any seven of the following:

a. Dress neatly and appropriately for the occasion

b. Show respect for rights of others and be courteous at all times

c. Be honest and do not take unfair advantage of others

d. Respect the property of others

e. Refrain from loud, boisterous talk, swearing, and horseplay

f. Demonstrate sportsmanship in the show ring, judging contests, and meetings

g. Be modest in winning and generous in defeat

h. Attend meeting promptly and respect the opinions of others in discussion

i. Take pride in the organization, activities, farming programs, exhibits, and the occupation of farming and ranching

j. Share with others the experiences and knowledge gained by attending state and national meetings

7. Evaluated to the satisfaction of the instructor.

8. Evaluated to the satisfaction of the instructor.

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to recognize the advantages of public speaking and relate these advantages to his vocational agriculture training. He should be able to listen to a speech and evaluate what the speaker is saying and be able to use discussion groups as a means of improving his speaking ability. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with public speaking to the correct definition.
2. Select from a list of alternatives the percentage of time an individual spends communicating.
3. Name four ways in which public speaking will benefit him today as a student and later on as a leader in the community.
4. Name three reasons for public speaking.
5. Name four advantages of being able to deliver a speech.
6. Distinguish between good speaking and bad speaking when given an example of each.
7. Match poor habits of speaking to the correct means of improvement.
8. Select from a list three key characteristics that will attract the attention of a prospective employer.
9. Name three advantages of being part of a group discussion as related to his ability to be a speaker.
10. Name the four requirements of a group discussion.
11. Match the types of discussion groups to the correct definition.
12. Name five rules to follow when organizing a group discussion.
13. Name three ways to improve his speaking ability.
14. Name five factors to consider when evaluating someone as a speaker.

15. Match the speaker's goals to the listener's response.

16. Demonstrate the ability to:

    a. Participate in a group discussion.

    b. Evaluate a speaker.

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Discuss terminal and specific objectives.

D. Discuss information and assignment sheets.

E. Inform students of any speeches being given in the community.

F. Identify the type of discussion group and select the topic for the students to use in the discussion.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Participate in group discussion and turn in assignment sheet.

D. Attend a meeting where a speech is being given and evaluate the speaker.

E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Assignment sheets

1. Assignment Sheet #1--Participate in a Group Discussion

2. Assignment Sheet #2--Evaluate a Speaker

D. Test

E. Answers to test

II. Reference--Oliver, Robert T. and Rupert L. Cortright. *Effective Speech.* New York: Holt, Rinehart, and Winston.

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

INFORMATION SHEET

I. Terms and definitions

A. Speech--Form of symbolism; expression of thought, language, voice, and action; product of the total personality

B. Communication--Two-way process of speaking and listening

C. Communicative speech--Speech that is not addressed at or toward its hearers; a talk with and to its listeners

D. Rapport--Sympathetic relationship of mutual understanding and feeling

E. Circular response--Mechanism through which rapport is established and maintained

F. Listening--More than merely hearing; attentive, active copartnership role in any act of oral communication

G. Discussion--Learning process; process of sharing the information and experiences of a group

H. Debate--Opportunity for presenting an argument for and against a proposed plan of action so that the participants and listeners may make up their minds and be prepared to vote on a certain issue

II. Communicative activities of individuals

A. Nine percent in writing

B. Sixteen percent in reading

C. Thirty percent in speaking

D. Forty-five percent in listening

III. Benefits of public speaking

A. Builds friendship

B. Exchanges information

C. Gives or asks for orders

D. Entertains others

E. Displays wit, intelligence, or information

INFORMATION SHEET

IV. Reasons for public speaking

A. Expression

B. Communication

C. Social control

V. Advantages of speech delivery

A. Improve the art of speaking

B. Develop clearer understanding of oneself

C. Develop better understanding of other people

D. Develop more logical, orderly habits of thinking

E. Develop skill in evaluating what one hears

VI. Good speaking vs bad speaking

A. Good speaking--Occurs when the speaker is communicating with an audience

B. Bad speaking--Occurs when the speaker is talking at the audience

VII.

Poor habits of speaking	Means of improvement
A. Careless preparation	A. Research and practice speech
B. Boastfulness	B. Accuracy; being oneself
C. Fault-finding	C. Accept constructive criticism
D. Unsupported facts	D. Know what one is talking about
E. Dull voice	E. Be enthused and pleasant
F. Nervous, rapid speech and/or pacing	F. Calm and steady rate of delivery

VIII. Key characteristics that will attract attention

A. Appearance

B. Personality

C. Speech

INFORMATION SHEET

IX. Advantages of being part of group discussion

A. Increases conversational skills

B. Develops skills in decision-making

C. Contributes directly to improvement in public speaking

X. Requirements of group discussion

A. Phrasing each question for discussion

B. Organizing the discussion

C. Leading the discussion

D. Participating in discussion

XI. Types of discussion groups

A. Round table--Group of individuals seated around a table; each member responds directly to the question

B. Lecture form--Expert on the subject gives a lecture; discussion comes directly from the audience in the form of questions

C. Panel discussion--Panel of experts on the subject sits on a platform and discusses the questions among themselves while the audience listens

D. Debate form--Similar to the lecture form; usually presents both sides of the issue and questions

E. Symposium--Group of short talks are presented by experts on various phases of the subject or from different viewpoints which can later be opened to the listeners

F. Personal interview--Individual uses the principles of both conversation and discussion in conducting personal interviews for applying for a job

XII. Rules to follow when organizing a group discussion

A. Define the topic clearly

B. Agree upon the principles or objectives

C. Analyze question thoroughly

D. Determine how far differences in agreements may extend

E. Summarize what was discussed

INFORMATION SHEET

XIII. Ways to improve speaking ability

A. Speak to satisfy oneself

B. Relate speech to individual personality

C. Make speech meaningful to audience

XIV. Factors to consider when evaluating a speech

A. Is what the speaker saying true?

B. Does speech increase audience respect?

C. Is the speech audience centered?

D. Does speech progress from introduction to conclusion?

E. Is audience listening to the speech or the speaker?

XV.

Speaker's goals	Listener's responses
A. To inform	A. To learn
B. To induce belief	B. To be convinced
C. To move to action	C. To do what is urged
D. To inspire	D. To feel inspired
E. To entertain	E. To enjoy

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

ASSIGNMENT SHEET #1--PARTICIPATE IN A GROUP DISCUSSION

You have been assigned to a discussion group which will discuss a topic selected by the instructor. Using the information previously studied, organize the discussion and take an active part with the group members. In the space provided, write the part of the discussion that you will be responsible for presenting. At the close of the discussion, write a short paragraph concerning your own personal feelings toward the benefits of a discussion group.

Topic to be discussed: _____

Group member's discussion part: _____

Evaluate the discussion group by answering the following questions.

1. Was the discussion organized? _____
2. Was the discussion properly led? _____
3. Did each group member participate in the discussion? _____
4. Was the topic clearly defined? _____
5. Did the group members agree upon the principles of objectives of the discussion? _____
6. Did the leader of the discussion group summarize what was discussed? _____

Benefits of discussion groups:

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

ASSIGNMENT SHEET #2--EVALUATE A SPEAKER

Select someone who is speaking in your local community and, by using the questions below, rate his skill as a speaker. If no such person is available within your community, rely on other means such as radio and television. After listening to the speech, complete the evaluation form below and turn in to the instructor for his evaluation.

1. Who was the speaker?_____
2. Speech was given to what type of audience?_____
3. Was the speech a communication speech?_____
4. Were there any poor habits of speaking detected?_____ If yes, check the habit or habits.
   a. Careless preparation_____
   b. Boastfulness_____
   c. Fault-finding_____
   d. Unsupported facts_____
   e. Dull voice_____
   f. Rapid speaking_____
5. Which of the following were goals of the speaker as determined by the text of his speech? Place an "X" in the correct blank(s).
   a. To inform_____
   b. To induce belief_____
   c. To move to action_____
   d. To inspire_____
   e. To entertain_____
6. Was the speech audience centered?_____
7. Did you agree with what the speaker was saying?_____
8. Discuss in a short paragraph your overall opinion of the speech and your impression of the speaker. (Use back of this page if necessary.)

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

TEST

1. Match the terms on the right to the correct definition.

_____a. Opportunity for presenting an argument for and against a proposed plan of action so that the participants and listeners may make up their minds and be prepared to vote on a certain issue	1. Speech
_____b. Two-way process of speaking and listening	2. Rapport
_____c. Learning process; process of sharing the information and experiences of a group	3. Communication
_____d. Form of symbolism; expression of thought, language, voice, and action; product of the total personality	4. Debate
_____e. Mechanism through which rapport is established and maintained	5. Discussion
_____f. Speech that is not addressed at or toward its hearers; a talk with and to its listeners	6. Circular response
_____g. Sympathetic relationship of mutual understanding and feeling	7. Communicative speech
_____h. More than merely hearing; attentive, active copartnership role in any act of oral communication	8. Listening

2. Select from the list below the percentage of time an individual spends communicating by speaking. Place an "X" in the blank.

_____a. Nine percent

_____b. Sixteen percent

_____c. Thirty percent

_____d. Forty-five percent

3. Name four ways in which public speaking will benefit you today as a student and later on as a leader in the community.

   a.

   b.

   c.

   d.

4. Name three reasons for public speaking.

   a.

   b.

   c.

5. Name four advantages of being able to deliver a speech.

   a.

   b.

   c.

   d.

6. Distinguish between good speaking and bad speaking by placing an "X" before the example of good speaking.

   _____a. Occurs when the speaker is talking at the audience

   _____b. Occurs when the speaker is communicating with an audience

7. Match the poor habits of speaking on the right to the correct means of improvement.

_____a. Accept constructive criticism	1. Careless preparation
_____b. Know what one is talking about	2. Boastfulness
_____c. Research and practice speech	3. Fault-finding
_____d. Accuracy; being oneself	4. Unsupported facts
_____e. Nervous, rapid speech and/or pacing	5. Calm and steady rate of delivery
_____f. Dull voice	6. Be enthused and pleasant

8. Select from the list below three key characteristics that will attract the attention of a prospective employer by placing an "X" in the blanks.

_____a. Intelligence

_____b. Appearance

_____c. Height

_____d. Speech

_____e. Age

_____f. Personality

9. Name three advantages of being part of a group discussion as related to your ability to be a speaker.

a.

b.

c.

10. Name the four requirements of a group discussion.

a.

b.

c.

d.

11. Match the types of discussion groups on the right to the correct definition.

_____a. Individual uses the principles of both conversation and discussion in conducting personal interviews for applying for a job	1. Round table
_____b. Group of individuals seated around a table; each member responds directly to the question	2. Lecture form
_____c. Group of short talks are presented by experts on various phases of the subject or from different viewpoints which can later be opened to the listeners	3. Panel discussion
	4. Debate form
	5. Symposium
	6. Personal interview

_____d. Expert on the subject gives a lecture; discussion comes directly from the audience in the form of questions

_____e. Similar to the lecture form; usually presents both sides of the issue and questions

_____f. Panel of experts on the subject sits on a platform and discusses the questions among themselves while the audience listens

12. Name five rules to follow when organizing a group discussion.

a.

b.

c.

d.

e.

13. Name three ways to improve your speaking ability.

a.

b.

c.

14. Name five factors to consider when evaluating someone as a speaker.

a.

b.

c.

d.

e.

15. Match the speaker's goals on the right to the correct listener's response.

Listener's responses	Speaker's goals
_____a. To learn	1. To entertain
_____b. To enjoy	2. To inform
_____c. To be convinced	3. To induce belief
_____d. To feel inspired	4. To move to action
_____e. To do what is urged	5. To inspire

16. Demonstrate the ability to:

a. Participate in group discussion.

b. Evaluate a speaker.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

IMPORTANCE OF PUBLIC SPEAKING
UNIT II

ANSWERS TO TEST

1. a. 4
   b. 3
   c. 5
   d. 1
   e. 6
   f. 7
   g. 2
   h. 8
2. c
3. Any four of the following:
   a. Builds friendship
   b. Exchanges information
   c. Gives or asks for orders
   d. Entertains others
   e. Displays wit, intelligence, or information
4. a. Expression
   b. Communication
   c. Social control
5. Any four of the following:
   a. Improve the art of speaking
   b. Develop clearer understanding of oneself
   c. Develop better understanding of other people
   d. Develop more logical, orderly habits of thinking
   e. Develop skill in evaluating what one hears

6. b

7. a. 3

   b. 4

   c. 1

   d. 2

   e. 5

   f. 6

8. b, d, f

9. a. Increases conversational skills

   b. Develops skills in decision-making

   c. Contributes directly to improvement in public speaking

10. a. Phrasing each question for discussion

    b. Organizing the discussion

    c. Leading the discussion

    d. Participating in discussion

11. a. 6

    b. 1

    c. 5

    d. 2

    e. 4

    f. 3

12. a. Define the topic clearly

    b. Agree upon the principles or objectives

    c. Analyze question thoroughly

    d. Determine how far differences in agreements may extend

    e. Summarize what was discussed

13. a. Speak to satisfy oneself

b. Relate speech to individual personality

c. Make speech meaningful to audience

14. a. Is what the speaker saying true?

b. Does speech increase audience respect?

c. Is the speech audience centered?

d. Does speech progress from introduction to conclusion?

e. Is audience listening to the speech or the speaker?

15. a. 2

b. 1

c. 3

d. 5

e. 4

16. Performance skills will be evaluated to the satisfaction of the instructor.

DEVELOPING AND DELIVERING A SPEECH
UNIT III

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to name the intent of a speech when listening to or reading a text of a speech. He should be able to select, gather information, and deliver a three- to eight-minute speech on some phase of vocational agriculture training. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with developing and delivering a speech to the correct definition.
2. Name the five general intents of a speech.
3. Name the steps in developing ideas concerning a speech.
4. Name the "must do" factors for beginning speakers when preparing a speech.
5. Name the three factors to remember when recording material for a speech.
6. State the rules for using quotations in a speech.
7. Name three important factors to remember when using statistics in a speech.
8. Select the most frequent error used by beginning speakers when given a list of alternatives.
9. Name three factors that facilitate speech development.
10. Distinguish between a topical and a sentence outline when given a definition of each.
11. Name four reasons for outlining a speech.
12. Name the three principal parts of an outline, arranging them in order of development.
13. Name four factors used when developing the main ideas of a speech.
14. Discuss in a short paragraph how the introduction is used in a speech.
15. Discuss in a short paragraph how the conclusion should blend with the speech.

16. Name three ways of making a good first impression when giving a speech.

17. Name five ways of developing and adding meaning to the delivery.

18. Name three reasons for using gestures in public speaking.

19. Name three ways of developing the proper delivery.

20. Demonstrate the ability to:

    a. Read a speech and identify the introduction, body, and conclusion.

    b. Select a speech topic from the different divisions of the FFA public speaking contest, conduct research on the subject, and write the information.

    c. Write a sentence outline of the speech from the information collected.

    d. Write and deliver a three- to eight-minute speech to the class.

DEVELOPING AND DELIVERING A SPEECH
UNIT III

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Inform student of any speeches being given in the community.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete all assignment sheets and return to instructor for his evaluation.

D. Present a three- to eight-minute speech to the class.

E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Judge's score sheet

D. Contestant's certification

E. Transparency masters

1. TM 1--What is an Outline?
2. TM 2--What Should an Outline Look Like?

3. TM 3--Principal Parts of an Outline

4. TM 4--Conclusion

F. Assignment sheets

1. Assignment Sheet #1--Read a Speech

2. Assignment Sheet #2--Select Speech Topic

3. Assignment Sheet #3--Write Sentence Outline on Selected Topic

4. Assignment Sheet #4--Write and Deliver a Speech

G. Test

H. Answers to test

II. References:

A. Eisenson, Jon, and Paul H. Boase. *Basic Speech.* New York: The Macmillan Company.

B. Oliver, Robert T. and Rupert L. Cortright. *Effective Speech.* New York: Holt, Rinehart, and Winston.

DEVELOPING AND DELIVERING A SPEECH
UNIT III

INFORMATION SHEET

I. Terms and definitions

A. Paraphrase--Process of taking a quotation and breaking it down into one's own words

B. FFA public speaking contest--Contest held on the local, county, district, state, regional, and national levels where a student can demonstrate his ability in developing skills in public speaking

C. Outline--Logical organization of ideas which forms the framework of any story, essay, or other form of literature

D. Gesture--Use of arm or body motions as a means of expressing or emphasizing an idea; an integral part of speech

II. General intents of a speech

A. To inform

B. To induce belief

C. To move to action

D. To inspire

E. To entertain

III. Developing ideas concerning speech

A. Start with what one knows

B. Research available references

C. Record speech material

IV. "Must do" factors for beginning speakers when preparing a speech

A. Write it

B. Label it

C. File it

INFORMATION SHEET

V. Factors for recording material

A. Identify reference source

B. Record passage accurately

C. Record material as a single and complete unit

VI. Rules for using quotations

A. Do not use several quotations in speech

(NOTE: Audience wants your opinion, not some unknown author's opinion.)

B. Use quotations in complete text

VII. Factors to remember when using statistics

A. Source of information

B. Date of information

C. Representative value

VIII. Frequent error of beginning speaker--Selecting speech topics that are too broad

IX. Factors that facilitate speech development

A. Make the speech clear

1. Make it clear to yourself
2. Phrase it clearly for your audience
3. Clarify new idea further by definition

B. Make the idea arresting

1. Should be striking, different, and unusual
2. Should be personal
3. Should be concrete

C. Make the idea significant

INFORMATION SHEET

D. Make the idea familiar--Get acquainted with audience

E. Make the idea attractive--Provide the audience with an opportunity to hear what is being said

F. Make the idea inevitable--Speak as though the idea has to happen

G. Make the idea appealing

X. Types of outlines

A. Sentence--Clearer and more complete form of outline; gives a more detailed statement

B. Topical outline--Key words or phrases that express a thought

XI. Reasons for outlining speech (Transparency 1)

A. Reveal strength and weakness

B. Aid in organization and development of ideas

C. Reveal the proportion of the speech

D. Serve as an invaluable time-saver

XII. Principal parts of outline (Transparencies 2 and 3)

A. Introduction

B. Body--Main idea of the speech; should be developed first when preparing a speech

C. Conclusion

XIII. Factors used when developing main ideas

A. Limited in numbers

B. Stand out clearly and emphatically

C. Adequate to support the theme

D. Arranged in the order most effective for the audience

XIV. Introduction of speech--Attractive and motivating means of introducing the subject on which one is going to speak

(NOTE: This is a process of telling the audience what one is going to say.)

XV. Conclusion--Combining the various threads of the speech in one final effort to complete the speaker's purpose (Transparency 4)

(NOTE: Tell the audience what has been discussed.)

INFORMATION SHEET

XVI. Ways of making a good first impression

A. Step up to lectern briskly and confidently

B. Stand behind lectern in a comfortable but erect position

C. Be clearly heard with pleasant volume

D. Let all important actions, objects, and aids be clearly seen

E. Gain and hold audience attention

F. Recognize that some fear is normal and do not get upset

XVII. Developing and adding meaning to delivery

A. Eye contact

B. Gestures

1. Hand

2. Facial

C. Posture

D. Movement

E. Voice control

XVIII. Reasons for using gestures

A. Signify specific thought

B. Imply attitudes or moods

C. Express thoughts and feelings

XIX. Ways of developing proper delivery

A. Stand in front of mirror

B. Use tape recorder

C. Present speech to someone

INFORMATION SHEET

XX. FFA public speaking contest topics

Speech Division	Sponsor	Context	Time	Resource Materials
FFA Public Speaking	National FFA Foundation	Any field related to Agri. and FFA	6-8 min.	FFA Manual, National Assn. Materials
Bankers	Oklahoma Bankers Assn.	Any phase of banking	6-8 min.	Local bank, Oklahoma Bankers Assn.
Co-op	Okla. Agri. Co-Op Council	Aspect of Co-Op mgnt.	6-8 min.	Okla. Agri. Co-Op Council, Stillwater, Oklahoma
Soil Conservation	Okla. Assn. of Soil and Water Conservation Districts	Any phase of soil and water mgnt.	6-8 min.	County Soil Conservation Office, State SCS Office
Greenhand Limited to Freshmen only	Johnny McElroy 1967-68 State FFA President	Any field related to Agri. and FFA	6-8 min.	Manual, National Convention Proceedings, National Future Farmers Mag.
Dairy	American Dairy Assn. of Okla.	Any phase of dairy products, promotion, and sales	6-8 min.	Okla. Dairy Assn. of Milk Producers, Okla. City, Dairy Processing Plants
Farmers Union	Farmers Union	Any phase of Agriculture; speech must mention Farmers Union	3-5 min.	Local Farmers Union Rep. Office, Agri. Farm Mag.

(NOTE: For their speeches contestants may choose any current subject of agricultural nature and of general interest to the public. The speech must be tied closely to the services and functions of the speech division sponsor.)

JUDGES SCORE SHEET
STATE PUBLIC SPEAKING CONTEST--FUTURE FARMERS OF AMERICA

PART I FOR SCORING AND COMPOSITION

Items to be scored	Points Allowed	Points Awarded Contestants						
		1	2	3	4	5	6	7
1. CONTENT OF MANUSCRIPT Importance and appropriateness of subject Suitability of the material used Accuracy of the statements included Evidence of purpose Completeness and accuracy of bibliography	200							
2. COMPOSITION OF SPEECH - MANUSCRIPT Organization of content — Language used Unity of thought — Sentence structure Logical development — Accomplishment of purpose	100							

PART II FOR SCORING DELIVERY OF THE PRODUCTION

Items to be scored	Points Allowed							
1. VOICE Pitch — Articulation — Quality Force — Pronunciation	100							
2. STAGE PRESENCE Personal appearance — Attitude Poise and body posture — Confidence Ease before audience — Personality	100							
3. POWER OF EXPRESSION Fluency — Directness Emphasis — Communicative ability Sincerity — Conveyance of thought and meaning	200							
4. RESPONSE TO QUESTIONS Ability to satisfactorily answer the questions on the speech which are asked by the judges indicating originality, familiarity with subject, and ability to think quickly	200							
5. GENERAL EFFECT Extent to which the speech was interesting, understandable, convincing, pleasing, and held attention	100							
TOTAL	1000							
Less time each minute	20							
GRAND TOTALS								
Numerical - or Final placing of contestants								

CONTESTANT'S CERTIFICATION

FUTURE FARMERS OF AMERICA--PUBLIC SPEAKING CONTESTS

I hereby certify that I meet all the eligibility requirements for participation in the state FFA public speaking contests for the current year as set forth by the boards of student officers and directors. My speech entitled

_____

in the _____ division is the result of my own effort and ability. It is understood that I am encouraged to utilize all available training facilities of my local school in developing my speaking abilities and that I may obtain facts and working data from any source. However, in securing information such as direct quotes or phrases, specific dates, figures, or other materials, such must be marked in "quotes" in the manuscript and are identified in the bibliography at the end of the manuscript. Failure to do so represents plagiarism and will automatically lead to my disqualification.

DATE:_____ SIGNED:_____

(Contestant's full signature)

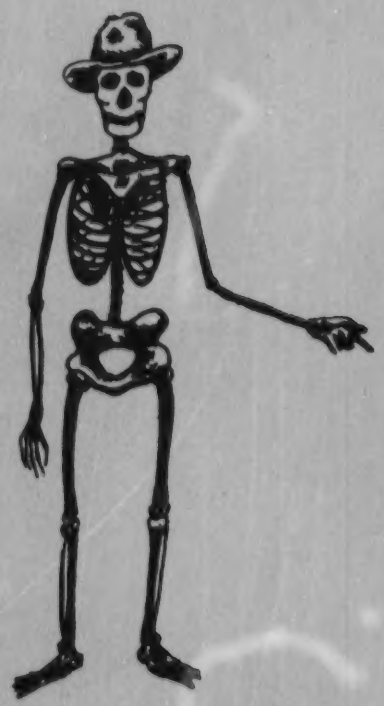
APPROVED_____

(Local Advisor)

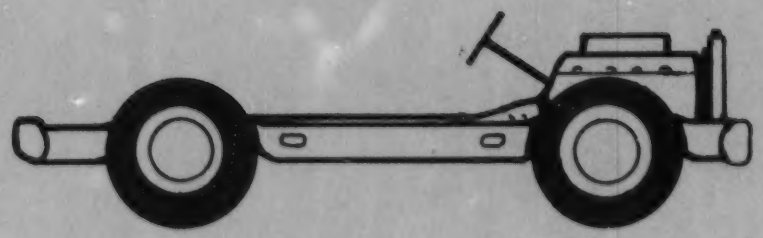
IMPORTANT: This form must accompany four double-spaced typewritten copies of your speech to the person in charge of the district or state public speaking contests.

What is an Outline ?

A SKELETON



OR A FRAME



An Outline Forms The Framework Of A Story, Essay, Or Speech.

What Should an Outline Look Like?

I. INTRODUCTION
   A. Relationship establisher
   B. Interest gainer

II. MAIN IDEA
   A. Revelation of central thought
   B. Reason for giving this talk

III. BODY
   A. First main point
      1. Subheading--Development of point
         a. Supporting idea
         b. Further support
      2. _____
   B. Second main point
      1. _____
         a. _____
         b. _____
      2.

IV. CONCLUSION
   A. Summary or restatement
   B. Final punch line

Principal Parts of an Outline

I. INTRODUCTION: Arouses interest in you and indicates your appreciation of the audience.

II. MAIN IDEA: Lets the audience know what they are to hear about and prepares them for good listening.

III. BODY: Develops the main idea.

IV. CONCLUSION: Summarizes, reviews, urges action, or gains respect for ideas expressed.

090773

Conclusion

PURPOSES OF A CONCLUSION:

A. To Give A Feeling of Finality to Talk

B. To Clinch Arguments

C. To Inspire Action or Respect for Ideas

WHEN FINISHED

DEVELOPING AND DELIVERING A SPEECH
UNIT III

ASSIGNMENT SHEET #1--READ A SPEECH

Read the speech below and when completed with the reading, identify the introduction, body, and conclusion. This may be accomplished by writing a short discussion of how well you believe the three parts were written. When completed, return to instructor for his evaluation.

A THING CALLED LEADERSHIP
by Speaking Winner - First Place National FFA Convention
Kevin Hall

I'd like to relate to you a story of a young boy who, when entering high school, had a burning desire to participate in school athletics. He was not the same as you and me, however, for an early childhood accident left him without the use of his arms. They hung limp at his sides, permanently crippled. He couldn't play baseball, football, or basketball. Wrestling and soccer were not for him. But there was one sport he could participate in - track.

In his sophomore, junior, and senior years he practiced hard after school with the track squad, but he never ran in a race. He wasn't good enough! Finally, at the last meet of the year, one of his teammates took ill suddenly and was unable to run. The boy of our story went to the coach and asked to be allowed to run in his teammate's place. Rather than lose the race by default, the coach granted permission, and as the runners took their positions in the blocks, a strange hush fell over the crowd. The gun went off, and as the runners shot up out of the blocks and down the track, our boy was last. He was last going around the first turn and last going down the far side, with his arms dangling pitifully at his sides while the other sprinters constantly enlarged the lead. As this boy started around the last turn he lost his balance, tripped, and fell. He got up without the use of his arms and again started to run. As he approached the finish line, the audience stood and cheered, many with tears in their eyes.

As he crossed the finish line, not only his teammates but also his competitors greeted him and hoisted him upon their shoulders and paid tribute to him. This boy had drive; he had ambition; he had courage; he had a goal. And it is these same four qualities that are characteristic of a successful FFA member and of a leader.

But what is this thing called leadership? Leadership has almost as many definitions as there are people in the world. As defined by *Webster's New World Dictionary*, leadership is the "ability to lead." As outlined in the inspirational book *Forward FFA*, leadership in an individual is that combination of qualities and attributes that radiates confidence, inspires others, and causes others to follow him.

Some people accept the philosophy that leaders are born, not made. Others believe that leaders are made, not born. I believe that no man is born a leader, but that every man is born with the potential of leadership. Not every man is capable of becoming an outstanding leader, but every man has a degree of leadership ability that should be developed and put to work.

Picture, if you would, a set of concentric circles. In the center of these circles we place a dot. The dot represents individuals, and the circles represent the degree of actual limits of leadership ability.

ASSIGNMENT SHEET #1

Those with lesser ability lie within the first circle, those with more ability come within the second circle, and so on. It's our responsibility to push toward our potential to reach for our ultimate capability - this should be our goal.

We may never reach the outer circle - few, if any, will. But it is there for us to strive toward each day, week, month, year and for our lifetime. Our world, our environment and its problems are changing constantly and so will our potential.

Some worthy advice to young leaders and FFA members who are striving for this lifetime goal can be found in the words of Calvin Coolidge, who said:

"Nothing can take the place of persistence,
Talent will not, nothing is more common than unsuccessful men
with talent,
Education will not, the world is full of educated derelicts,
Genius will not, unrewarded genius is almost a proverb.
Persistence and perseverance alone are omnipotent.
The slogan 'Press On' has solved and always will solve the problems
of the human race."

W.H. Danforth, a great leader, wrote in his book *I Dare You*, "I dare you to be yourself, I dare you to do your best, I dare you to do better tomorrow than you have done today."

Today's youths are tomorrow's leaders - and today's FFA members are not only going to replace those down on the farm and in other agricultural positions, but many are destined to be leaders as well. At the rate our world is changing and with the growing complexity of our problems, tomorrow's leaders will have to be more efficient, better educated, and better citizens. They will have to be more knowledgeable about our environment, more aware of our country's problems, more concerned with the world, but most of all, tomorrow's leaders will have to be squares! Squares, you ask? Because you connote square to be a degrading term or insult. But doesn't it all depend on your definition of the word square? Back in Mark Twain's day, square was one of the finest words in the English language. You gave a man a square deal if you were honest. You gave him a square meal if he were hungry. You stood foursquare for your rights and square against all unjust oppression. And if you were out of debt you were square with the world, and then you could look your fellowman square in the eye. But this word square has been badly bent and misshapen, and today everyone knows what a square is:

A square is someone who volunteers when he doesn't have to; someone who starts a job and completes it to the best of his ability. Someone who has the courage to step out and take command; someone who helps his neighbor and cooperates with his fellowman. A square not only preaches the Golden Rule but practices it. This is the kind of person I picture as a leader.

So the next time someone calls you square for going to church on Sunday, for saluting your flag, for helping your neighbor, for having the drive, the ambition, the courage to overcome any obstacles on the way to your goal, be proud you are given that distinction, for tomorrow the world will call upon the squares to solve the problems and assume the positions of leadership!

(NOTE: Taken from the *1970 Proceedings of the 43rd National Convention of the Future Farmers of America.*)

DEVELOPING AND DELIVERING A SPEECH
UNIT III

ASSIGNMENT SHEET #2--SELECT SPEECH TOPIC

Study closely the different divisions of the FFA public speaking contest. After you have finished, select a topic on which you would like to speak. Using the identified references, conduct as much research as possible on the topic. When completed, visit with the instructor about additional information. The research should be recorded below.

DEVELOPING AND DELIVERING A SPEECH
UNIT III

ASSIGNMENT SHEET #3--WRITE SENTENCE OUTLINE ON SELECTED TOPIC

At this point, you should begin to structure your speech in order to develop meaning and clarification. By using the information you have collected, write a sentence outline. When completed, have the instructor evaluate it and discuss means of improvement.

DEVELOPING AND DELIVERING A SPEECH
UNIT III

ASSIGNMENT SHEET #4-WRITE AND DELIVER A SPEECH

Using the sentence outline written previously, write a three- to eight-minute speech. When finished, have the instructor evaluate it. Study the manuscript and be able to present the context orally. The space provided below may be used for writing the speech.

DEVELOPING AND DELIVERING A SPEECH
UNIT III

TEST

1. Match the terms on the right to the correct definition.

_____a. Contest held on the local, county, district, state, regional, and national levels where a student can demonstrate his ability in developing skills in public speaking	1. Gesture
	2. Paraphrase
	3. Outline
_____b. Logical organization of ideas which forms the framework of any story, essay, or other form of literature	4. FFA public speaking contest
_____c. Use of arm or body motions as a means of expressing or emphasizing an idea; an integral part of speech	
_____d. Process of taking a quotation and breaking it down into one's own words	

2. Name the five general intents of a speech.

   a.

   b.

   c.

   d.

   e.

3. Name the three steps in developing ideas concerning a speech.

   a.

   b.

   c.

4. Name the three "must do" factors for beginning speakers when preparing a speech.

   a.

   b.

   c.

5. Name the three factors to remember when recording material for a speech.

a.

b.

c.

6. State the rules for using quotations in a speech.

a.

b.

7. Name three important factors to remember when using statistics in a speech.

a.

b.

c.

8. Select the statement below which represents the most frequent error used by beginning speakers. Place an "X" in the blank.

_____a. Speech topic not appropriate for speaker

_____b. Speech topic not appropriate for audience

_____c. Speech topic too broad

_____d. Introduction does not fit the body of speech

9. Name three factors that facilitate speech development.

a.

b.

c.

10. Distinguish between a topical and a sentence outline by placing an "X" in the blank in front of the topical outline.

_____a. Clearer and more complete form of outline; gives a more detailed statement

_____b. Key words or phrases that express a thought

11. Name four reasons for outlining a speech.

a.

b.

c.

d.

12. Name the three principal parts of an outline, arranging them in order of development.

a.

b.

c.

13. Name four factors used when developing the main ideas of a speech.

a.

b.

c.

d.

14. Discuss in a short paragraph how the introduction is used in a speech.

15. Discuss in a short paragraph how the conclusion should blend with the speech.

16. Name three ways of making a good first impression when giving a speech.

a.

b.

c.

17. Name five ways of developing and adding meaning to your delivery.

a.

b.

c.

d.

e.

18. Name three reasons for using gestures in public speaking.

a.

b.

c.

19. Name three ways of developing the proper delivery.

a.

b.

c.

20. Demonstrate the ability to:

a. Read a speech and identify the introduction, body, and conclusion.

b. Select a speech topic, conduct research on the subject, and write the information.

c. Write a sentence outline of the speech from the information collected.

d. Write and deliver a three- to eight-minute speech.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

DEVELOPING AND DELIVERING A SPEECH
UNIT III

ANSWERS TO TEST

1. a. 4
   b. 3
   c. 1
   d. 2
2. a. To inform
   b. To induce belief
   c. To move to action
   d. To inspire
   e. To entertain
3. a. Start with what one knows
   b. Research available references
   c. Record speech material
4. a. Write it
   b. Label it
   c. File it
5. a. Identify reference source
   b. Record passage accurately
   c. Record material as a single and complete unit
6. a. Do not use several quotations in speech
   b. Use quotations in complete text
7. a. Source of information
   b. Date of information
   c. Representative value

8. c

9. Any three of the following:

   a. Make the speech clear

   b. Make the idea arresting

   c. Make the idea significant

   d. Make the idea familiar

   e. Make the idea attractive

   f. Make the idea inevitable

   g. Make the idea appealing

10. b

11. a. Reveal strength and weakness

    b. Aid in organization and development of ideas

    c. Reveal the proportion of the speech

    d. Serve as an invaluable time-saver

12. a. Introduction

    b. Body

    c. Conclusion

13. a. Limited in numbers

    b. Stand out clearly and emphatically

    c. Adequate to support the theme

    d. Arranged in the order most effective for the audience

14. The introduction is used in a speech to make it attractive and motivating; it is a means of introducing the subject on which one is going to speak

15. The conclusion combines the various threads of the speech in one final effort to complete the speaker's purpose

16. Any three of the following:
    a. Step up to lectern briskly and confidently
    b. Stand behind lectern in a comfortable but erect position
    c. Be clearly heard with pleasant volume
    d. Let all important actions, objects, and aids be clearly seen
    e. Gain and hold audience attention
    f. Recognize that some fear is normal and do not get upset
17. a. Eye contact
    b. Gestures
    c. Posture
    d. Movement
    e. Voice control
18. a. Signify specific thought
    b. Imply attitudes or moods
    c. Express thoughts and feelings
19. a. Stand in front of mirror
    b. Use tape recorder
    c. Present speech to someone
20. Performance skills will be evaluated to the satisfaction of the instructor.

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to list reasons for enterprise analysis. He should also be able to calculate unit cost and analyze each enterprise owned. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. List four reasons for using enterprise analysis.
2. List strong and weak points of an enterprise owned.
3. Calculate unit cost analysis.
4. Demonstrate the ability to analyze each enterprise owned.

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Discuss terminal and specific objectives.

D. Discuss information and assignment sheets.

E. Relate the information to the supervised farm training record book.

(NOTE: If student does not have projects with which to work assignment sheets, the instructor should provide him with necessary information to complete an analysis.)

F. Check assignment sheets.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete each assignment sheet pertaining to his projects or assigned by instructor.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Assignment sheets

1. Assignment Sheet #1--Breeding Enterprise Analysis
2. Assignment Sheet #2--Feeding Enterprise Analysis

3. Assignment Sheet #3--Crop Enterprise Analysis

4. Assignment Sheet #4--Dairy Enterprise Analysis

D. Test

E. Answers to test

II. References:

A. *Future Farmers of America, Supervised Training Record Book*. Stillwater, Oklahoma: Vocational Agriculture, State Department of Vocational and Technical Education, 1974.

B. *Instructional Materials for Vocational Agriculture I*. College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

INFORMATION SHEET

I. Reasons for enterprise analysis

A. Aids in planning future farm and ranch operations

B. Allows comparison of one enterprise to another

C. Aids in management decisions

D. Evaluates efficiency as manager

II. Strong and weak points of enterprises

	Strong	Weak
A. Breeding		
1.	90% or higher calf crop	Less than 90% calf crop
2.	125% lamb crop	Less than 125% lamb crop
3.	8.5 pigs weaned/litter	Weaning less than 8 pigs/litter
4.	Weighing regularly	No weight record
5.	Facilities to handle livestock	Poor facilities
B. Feeding		
1.	Feed efficiency	Poor feed conversion
2.	Good facilities	Poor feeding facilities
3.	Feeding a proper ration	Failure to feed a balanced ration
4.	Good water supply	Failure to provide adequate water supply
5.	Good parasite and disease control	Poor parasite and disease control
6.	Good management practice	Poor management (weighing, marketing, etc.)

INFORMATION SHEET

C. Crops

1.	Quality seed used	Failure to plant high quality seed
2.	Use of fertilizer	Failure to use fertilizer
3.	Weed control	Poor weed control management
4.	High yield	Yield too low
5.	Seed bed preparation	Poor seed bed preparation

D. Dairy

1.	Testing and records	Poor records and failure to test production
2.	Good water supply	Poor supply of water
3.	Sanitation	Poor sanitation
4.	Good production	Production low
5.	Parasite and disease control	Poor control of parasites and disease

(NOTE: The teacher may wish to give students the standards of the local community or the county. Students with the same enterprise should compare and evaluate each other's records.)

III. Calculating unit cost

A. Breeding enterprise

1. Calf crop

$$\frac{\text{Total number of calves}}{\text{Total number of cows}} \times 100 = \text{percent calf crop}$$

2. Average weight of animal at weaning

$$\frac{\text{Total pounds at weaning}}{\text{Total number of calves}} = \text{average weight at weaning}$$

INFORMATION SHEET

B. Feeding enterprise

1. Total gain

$$\frac{\text{Finish weight - starting weight}}{\text{Total number of animals}} = \text{average gain per animal}$$

2. Average gain per head per day

$$\frac{\text{Average gain per head}}{\text{Total number of days on feed}} = \text{average gain per head per day}$$

3. Pounds of feed fed per animal

$$\frac{\text{Total pounds of feed fed}}{\text{Total number of animals}} = \text{pounds of feed fed per animals}$$

4. Pounds of feed per pound of gain

$$\frac{\text{Total pounds of feed fed per animal}}{\text{Total gain per animal}} = \text{pounds of feed per pound of gain}$$

5. Feed cost per pound of gain

$$\frac{\text{Pounds of feed per pound of gain x feed cost}}{100} =$$

Feed cost per pound of gain

C. Crop enterprise

1. Yield per acre

$$\frac{\text{Total production (bushels, pounds, tons)}}{\text{Total acres}} = \text{units per acre}$$

2. Cost per unit of production

$$\frac{\text{Total cost (seed + tillage + fertilizer + etc)}}{\text{Total acres}} = \text{cost per acre}$$

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT 1

ASSIGNMENT SHEET #1--BREEDING ENTERPRISE ANALYSIS

Circle Enterprise
Beef, Sheep, Swine
Breed_____

Current School Year_____

Date Started_____

Date Closed_____

		State Standards	Local Standards	Goals
Number of breeding animals	_____	_____	_____	_____
Percent of calf crop	_____	90%	_____	_____
Percent of lamb crop	_____	110%	_____	_____
Number of pigs weaned per litter	_____	7.2	_____	_____
Weight of calves at weaning	_____	440 Steers 410 Heifers	_____	_____
Weight of pigs at 35 days	_____	20 pounds	_____	_____

Strong Points

1.

2.

3.

Weak Points

1.

2.

3.

Suggestions for Improving Weak Points

1.

2.

3.

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

ASSIGNMENT SHEET #2--FEEDING ENTERPRISE ANALYSIS

Circle Enterprise
Beef, Sheep, Swine
Breed_____

Current School Year_____

Date Started_____

Date Closed_____

		State Standards	Local Standards	Goals
Number of animals on feed	_____	_____	_____	_____
Starting weight of animals	_____	_____	_____	_____
Final weight of animals	_____	_____	_____	_____
Number of days on feed	_____	150 days (Swine)	_____ (Swine)	_____
		75 days (Sheep)	_____ (Sheep)	_____
		155 days (Beef)	_____ (Beef)	_____
Total gain in pounds	_____	_____	_____	_____
Total gain per day	_____	1.4 pounds (Swine)	_____ (Swine)	_____
		.5 pound (Sheep)	_____ (Sheep)	_____
		2.5 pounds (Beef)	_____ (Beef)	_____
Pounds of feed fed	_____	_____	_____	_____
Pounds of feed required per pound of gain	_____	3.2 pounds (Swine)	_____ (Swine)	_____
		8.0 pounds (Sheep)	_____ (Sheep)	_____
		8.0 pounds (Beef)	_____ (Beef)	_____

Strong Points

1.

2.

3.

Weak Points

1.

2.

3.

Suggestions for Improving Weak Points

1.

2.

3.

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

ASSIGNMENT SHEET #3--CROP ENTERPRISE ANALYSIS

Type of Crop_____ Current School Year_____

Date Started_____ Date Closed_____

		Local Standards	Goals
Number of acres in enterprise	_____	_____	_____
Amount of seed used per acre	_____	_____	_____
Fertilizer used			
Kind	_____	_____	_____
Pounds per acre	_____	_____	_____
Cost per acre	_____	_____	_____
Yield per acre	_____	_____	_____
Cost per bushel, pounds, tons	_____	_____	_____

Strong Points	Weak Points
1.	1.
2.	2.
3.	3.

Suggestions for Improving Weak Points

1.

2.

3.

ANALYSIS AND EVALUATION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

ASSIGNMENT SHEET #4--DAIRY ENTERPRISE ANALYSIS

Breed _____ Current School Year _____

Date Started _____ Date Closed _____

		State Standards	Local Standards	Goals
Number of cows in production	_____	_____	_____	_____
Average production per cow	_____	12,100 lbs.	_____	_____
Average butterfat production per cow	_____	438 lbs.	_____	_____
Average butterfat percent per herd	_____	3.6 %	_____	_____
Feed cost per pound of butterfat produced	_____	.65 lb.	_____	_____

Strong Points

1.

2.

3.

Weak Points

1.

2.

3.

Suggestions for Improving Weak Points

1.

2.

3.

ANALYSIS AND EVALUTION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

TEST

1. List four reasons for using enterprise analysis.

   a.

   b.

   c.

   d.

2. List two strong and two weak points for an enterprise owned.

Strong	Weak
a.	a.
b.	b.

3. Calculate unit cost analyses for the following problems.

   a. John Doe, a freshman, owns a Hereford steer. He purchased the steer September 1, and the steer weighed 600 pounds. He fed the steer for 140 days and the final weight was 1000 pounds. What was the total weight gain and average gain per day?

      1) Total weight gain_____

      2) Average daily gain_____

   b. Jim Smith planted 20 acres of wheat which yielded a total production of 800 bushels. What was his yield per acre?_____

   c. Bill White is milking 20 Holstein cows with a total production of 266,800 pounds. What is the average production per cow and average butterfat per cow using 3.6% butterfat?

      1) Average production per cow_____

      2) Average butterfat per cow_____

4. Demonstrate the ability to analyze each enterprise owned.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

ANALYSIS AND EVALUTION OF SUPERVISED EXPERIENCE PROGRAMS
UNIT I

ANSWERS TO TEST

1. a. Aids in planning future farm and ranch operations
   b. Allows comparison of one enterprise to another
   c. Aids in management decisions
   d. Evaluates efficiency as manager
2. Evaluated to the satisfaction of the instructor.
3. a. 1) 400 pounds
      2) 2.85 pounds
   b. 40 bushels
   c. 1) 13,340 pounds
      2) 480 pounds
4. Evaluated to the satisfaction of the instructor.

FARM CREDIT
UNIT II

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to select characteristics of a lender and a borrower, list sources of credit, and discuss factors indicating that borrowing money is a good business practice. He should also be able to identify credit instruments and write a check correctly. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with farm credit to the correct definitions.
2. Select from a list characteristics a lender should look for in a borrower.
3. Select from a list characteristics a borrower should look for in a lender.
4. List five main sources of credit.
5. List five purposes of a loan.
6. Discuss the factors indicating that borrowing is a good business practice.
7. State causes for poor repayment ability of a loan.
8. Identify credit instruments.
9. List five factors to consider when writing a check.
10. Write a check.
11. Calculate interest and interest rates when given a problem and a formula.

FARM CREDIT
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide the student with objective sheet.

B. Provide the student with information and assignment sheets.

C. Make transparencies.

D. Provide each student with a copy of *Financing Modern Agriculture* which can be obtained free from the Farm Credit Banks of Wichita, Wichita, Kansas.

E. Discuss terminal and specific objectives.

F. Discuss informaton and assignment sheets.

G. Give test.

II. Student:

A. Read objectives.

B. Read and study information sheet and take additional notes when necessary.

C. Complete all assignment sheets and have them evaluated by the instructor.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Credit Instruments: Check and Warehouse Receipt

2. TM 2--Credit Instruments: Bill of Sale Sight Draft: Front and Back

3. TM 3--Credit Instruments: Promissory Note

D. Assignment sheets

1. Assignment Sheet #1--Writing Checks

2. Assignment Sheet #2--Calculating True Interest Rate

E. Answers to Assignment Sheet #2

F. Test

G. Answers to test

II. References:

A. *Financing Farm and Ranch Activities.* Wichita, Kansas: Farm Credit Banks.

B. Hall, I.F., and W.P. Morteson. *The Farm Management Handbook.* Danville, Illinois: The Interstate Printers and Publishers.

C. Hamilton, James E. and W.R. Bryant. *Profitable Farm Management.* Englewood-Cliffs, New Jersey: Prentice-Hall, Inc.

D. *Financing Modern Agriculture.* Wichita, Kansas: Farm Credit Banks, 1972.

FARM CREDIT
UNIT II

INFORMATION SHEET

I. Terms and definitions

A. Credit--Use of borrowed capital which is obtained with a promise to repay the borrowed capital at a future date

B. Interest charge--Amount of money charged for the use of money loaned

(NOTE: This term is sometimes referred to as *finance charge*.)

C. Check--Signed written order on a bank to pay a certain sum of money on demand to the bearer of the check or to the order of a named person

D. Draft--Order from one party to another directing that party to pay money to a third party; similar to a check

E. Promissory note--Written promise of the borrower to repay a certain sum of money to a certain person or bearer on demand or on a specified date

F. Lien--Legal claim against property; usually proven by a mortgage, a security agreement, a sales contract, or other written contracts

G. Mortgage--Instrument creating a lien on property or making a conditional transfer of title to property; given as security for the payment of a debt or the carrying out of a contract

H. Warehouse receipt--Receipt given by a warehouseman for goods received by him for storage in his warehouse

I. Bill of lading--Contract or receipt signed by a common carrier agreeing to deliver the described freight to a given person at a stated place

J. Release--Transfer of a person's interest or right in property to another who has an interest in and usually possession of it

K. Sales contract--Agreement by one party to sell property or a service to a second party for a stated price and under stated conditions

L. Consumer credit--Services bought that are used up or consumed and do not directly improve the earning capacity or financial condition of the borrower

M. Short term credit--Loan usually made for one year or less

N. Intermediate term credit--Loan written with a maturity of more than one year, but not more than seven years

INFORMATION SHEET

O. Long term credit--Real estate credit used to finance investments in land, buildings, and other fixed capital which can be used for a long period of time, usually for ten years or more

II. Characteristics a lender looks for in a borrower

A. The person

B. Managerial ability

C. Financial position

D. Ability to repay

E. Purpose of the loan

F. Security for the loan

III. Characteristics a borrower looks for in a lender

A. Character

B. Lending policies

C. Permanence and dependability

D. Experience and knowledge of agriculture

E. Cost of the loan

IV. Sources of credit

A. Merchants or dealers

B. Individuals

C. Commercial banks

D. Insurance companies

E. Federal land banks

F. Production Credit Association

G. Farmers Home Administration

INFORMATION SHEET

V. Purposes of a loan

A. Buy a farm

B. Add new acreage to the farm already owned

C. Build a house, barn, grain storage, or other farm building that will add value to the farm or efficiency to the operation

D. Buy equipment with which to operate the farm

E. Buy fertilizer or other materials to make the land more productive

F. Add improved breeding stock and increase production

G. Buy feed for livestock or buy livestock

H. Consolidate old loans or debts into repayment schedules coordinated with new sources or times of income

I. Buy other goods or services

VI. Factors indicating that borrowing is good business practice

A. Additional income

B. Increase in size of operation

C. Product price rise

D. Sufficient repayment capacity

E. Individual's ability as a manager

VII. Causes for poor repayment ability

A. Business too small

B. Low production per unit

Examples: Poor crop yields, small calf crop, small pig crop, small returns from poultry

C. Low price per unit sold

Examples: Poor market, poor marketing management, poor quality

INFORMATION SHEET

D. High cash production costs

Examples: High feed, high labor, high replacement

E. High cash overhead

Examples: Heavy debt load, high interest rate, heavy taxes, high maintenance cost

F. High cash living costs

Examples: Extravagance, sickness, education of children

G. Borrowing above ability to repay

H. Overestimating the amount of the loan

VIII. Credit instruments (Transparencies 1, 2, and 3)

A. Check

B. Draft

(NOTE: It is sometimes referred to as a bill of sale draft.)

C. Promissory note

D. Warehouse receipt

IX. Factors to consider when writing a check

A. Write in ink

B. Write plainly

C. Do not leave space between dollar sign and check amount

D. Write out amount

E. Do not make payable to CASH

F. Do not sign a blank check

G. Void check if mistake is made

H. Write memo stating reason for check

INFORMATION SHEET

X. Written check (Transparency 1)

XI. Calculating interest rates

A. Formula

$$\text{True annual interest rate} = \frac{\text{Total of finance charges}}{\text{½ original loan}} \times \frac{\text{No. of payments}}{\text{No. of years}} \times \frac{1}{\text{No. of payments plus one}}$$

B. Problem

A farmer borrowed $8,000 which cost him $400 for 24 months. What was his interest rate?

$$\frac{400}{4000} \times \frac{24}{2} \times \frac{1}{25} = 4.8\% \text{ interest}$$

Credit Instruments

RANDOM, KANSAS December 29, 1961 NO. 147

PLANTERS STATE BANK OF RANDOM

PAY TO THE ORDER OF Joe Green $1500.00

Fifteen hundred and no/100 DOLLARS

John Brown

Cash rent

Check

XYZ Farmers Cooperative Association
Random, Kansas (Specimen)

LICENSED AND BONDED UNDER THE UNITED STATES WAREHOUSE ACT
ORIGINAL NEGOTIABLE WAREHOUSE RECEIPT FOR GRAIN

RECEIVED FROM XYZ Farmers Cooperative Association OR Random, Kansas

For storage in the above named warehouse in the course of Interstate or Foreign Commerce grain of the quantity, kind, and grade described herein for which this receipt is issued subject to the United States Warehouse Act, the regulations thereunder, the grain warehouseman and the terms of this contract. Grade according to U. S. official standards, and weight are as determined by an inspector and weigher licensed under said act. Said grain is FULLY INSURED by the undersigned warehouseman against loss or damage by fire, lightning, internal explosion, tornado, cyclone, and windstorm unless otherwise stated hereon. Said grain is accepted upon condition that the depositor or holder of this receipt shall demand delivery not later than one year from the date of this receipt. The undersigned warehouseman is at the option of said grain either solely, jointly or in common with others unless otherwise stated hereon. Upon return of this receipt properly indorsed and payment of the warehouseman's lien claimed hereon, said grain or grain of the same or either grade will be delivered to the above named depositor or his ORDER

Date Issued			Kind of Grain	Grade	Dock %	Lbs of Grain not Stock	Gross Bushels	Net Pounds	Net Bushels
11	7	67	Milo	No. 2 TM	0	2,240,000		2,240,000	

ISSUED AT Random, Kansas 11-7-67

BY John Doe

CCC Wire Code No.

The Undersigned Warehouseman Claims A Lien On Said Grain For Charges And Liabilities As Follows:

Elevation Chgs. Prepaid Per Bu.		Date Storage Pd. Through		
In @ ¢	Out @ ¢	Mo.	Day	Yr.
		4	1	68

Handling and other accrued charges according to the tariff of the company. Full amount of charges furnished on request.

The Issuance Of A Redundant Receipt Or Illegal Conversion Or Removal Of The Products Represented By This Receipt Is Punishable By A $10,000 Fine Or Imprisonment For 10 Years Or Both.

Warehouse Receipt

00108

Credit Instruments

To: RANDOM PRODUCTION CREDIT ASSOCIATION
RANDOM, KANSAS

October 23, 1962

PAY TO THE ORDER OF John Jones $14,990.00

Fourteen thousand nine hundred ninety and no/100 DOLLARS

NUMBER	SEX AND AGE	BREED DESCRIPTION BRANDS	WEIGHT	MEAT VALUE	AMOUNT
150	steer calves	Hereford	400#	99.95	$14,990.00

FOR VALUE RECEIVED I HEREBY ASSIGN, TRANSFER, SELL AND SET OVER TO THE ABOVE NAMED ASSOCIATION, ALL MY RIGHT, TITLE, AND INTERESTS IN AND TO THE LIVESTOCK OR OTHER PROPERTY DESCRIBED HEREIN.

RANDOM STATE BANK
NAME OF BANK

RANDOM, KANSAS
TOWN

John Brown
PURCHASER

BILL OF SALE DRAFT PCA-006

Bill of Sale Sight Draft
(Front)

THIS DRAFT WILL NOT BE HONORED UNLESS BILL OF SALE HEREWITH IS PROPERLY FILLED OUT, AND IS ACCOMPANIED BY RELEASE OF ANY MORTGAGE OR LIEN COVERING LIVESTOCK DESCRIBED HEREIN. ALL LIENHOLDERS MUST BE NAMED WITH SELLER AS PAYEES OF THIS DRAFT.

BILL OF SALE AND ENDORSEMENT

STATE OF Kansas
COUNTY OF Random, ss

KNOW ALL MEN BY THESE PRESENTS: THAT THE UNDERSIGNED IN CONSIDERATION OF THE WITHIN AMOUNT, PAID BY THE BUYER, RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, HAS BARGAINED, SOLD AND DELIVERED AND BY THESE PRESENTS DOES BARGAIN, SELL AND DELIVER UNTO THE BUYER THE LIVESTOCK DESCRIBED IN BILL, STATE IF BROKE OR VOUCHER _____. THE SELLER HEREBY COVENANTS WITH THE SAID BUYER THAT HE IS THE LAWFUL OWNER OF SAID LIVESTOCK AND THAT HE WILL WARRANT AND DEFEND THE SAME AGAINST THE CLAIMS AND DEMANDS OF ALL PERSONS WHOMSOEVER. THE ABOVE DESCRIBED LIVESTOCK ARE MORTGAGED TO None

(IF NOT MORTGAGED WRITE "NONE" ABOVE THIS LINE)
AND PROPER RELEASES ARE ATTACHED.

X John Jones
(SELLER—ENDORSER)

Bill of Sale Sight Draft
(Back)

00109

Credit Instruments

PCB No. _____ **PROMISSORY NOTE** L BROWN, JOHN & NANCY RANDOM PCA

$30,485.00 December 15, 1961

December 1, 1962 after date, for value received, we promise to pay to the order of

RANDOM PRODUCTION CREDIT ASSOCIATION

at its office in the City of Random, Kansas

THIRTY THOUSAND FOUR HUNDRED EIGHTY FIVE & no/100 Dollars,

with interest at the rate of 6 per centum per annum from date until paid. In the event this note is placed in the hands of an attorney for collection we further agree to pay such reasonable attorney's fees and costs of collection as may be permitted by law to be charged. The surety, indorsers, and guarantors of this note severally waive presentment, demand, protest and notice of protest and of nonpayment thereof, and expressly agree that the payee or its assigns, at or after maturity, may extend the time of payment of the whole or any part thereof from time to time without notice. This note shall be governed by the laws of the state where payable and is secured by chattel mortgage.

John Brown
John Brown

Nancy Brown
Nancy Brown

Date	Advances	Payments	Balance
12/15/61	6,625 00		6,625 00

PCA 410 7-59

Promissory Note

00110

FARM CREDIT
UNIT II

ASSIGNMENT SHEET #1--WRITING CHECKS

Write two checks using the information given below and on the following page.

Check #1

1. Date: Determined when check is written
2. Pay to: John Doe
3. Amount: $250.00
4. For: Pasture lease
5. Sign your name

(NOTE: When finished writing the check, write VOID across the face of the check.)

first/OKLAHOMA Bank & Trust Company
in sulphur, oklahoma

86-1066
1031

No. _____

_____ 19 ____

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

ACCT. NO.

_____

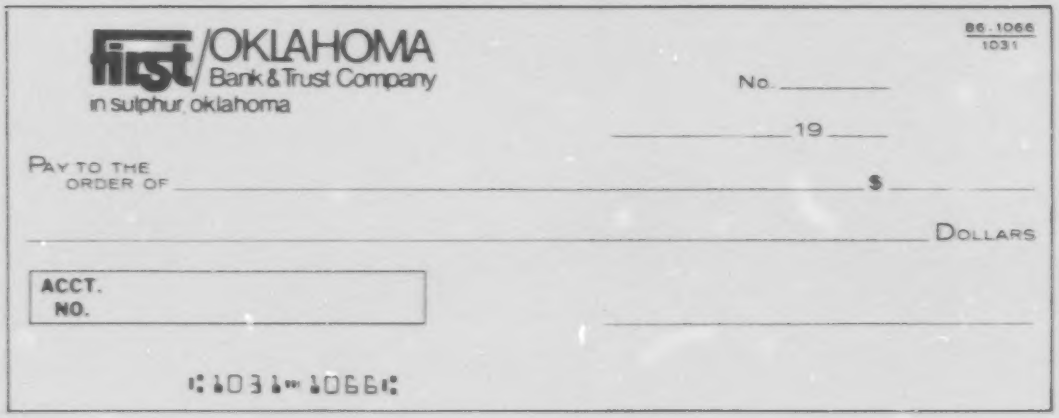
⑆1031⑈1066⑆

ASSIGNMENT SHEET #1

Check #2

1. Date: Determined when check is written
2. Pay to: Henry Doe
3. Amount: $345.50
4. For: Two cows
5. Sign your name

(NOTE: When finished writing the check, write VOID across the face of the check.)


first /OKLAHOMA
Bank & Trust Company
in sulphur oklahoma

86-1066
1031

No. _____

_____ 19 ____

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

ACCT. NO.

⑆1031⑈1066⑆

FARM CREDIT
UNIT II

ASSIGNMENT SHEET #2--CALCULATING TRUE INTEREST RATE

Work each of the problems listed below using the formula given by the instructor. When work is finished, turn in to instructor for grading.

1. Farmer A borrows $1,200.00 which cost him $200.00 for 24 months. What was his true interest rate?

2. Farmer B borrows $800.00 which cost him $40.00 for 12 months. What rate of interest did he pay?

3. Farmer C borrows $24,000.00 which cost him $1,000.00 for 24 months. What was his rate of interest?

FARM CREDIT
UNIT II

ANSWERS TO ASSIGNMENT SHEET #2

1. Farmer A--16.0% interest
2. Farmer B--9.2% interest
3. Farmer C--4.0% interest

FARM CREDIT
UNIT II

TEST

1. Match the terms on the right to the correct definition.

_____a. Instrument creating a lien on property or making a conditional transfer of title to property; given as security for the payment of a debt or the carrying out of a contract

_____b. Agreement by one party to sell property or a service to a second party for a stated price and under stated conditions

_____c. Real estate credit used to finance investments in land, buildings, and other fixed capital which can be used for a long period of time, usually for ten years or more

_____d. Legal claim against property; usually proven by a mortgage, a security agreement, a sales contract, or other written contracts

_____e. Services bought that are used up or consumed and do not directly improve the earning capacity or financial condition of the borrower

_____f. Loan written with a maturity of more than one year, but not more than seven years

_____g. Amount of money charged for the use of money loaned

_____h. Written promise of the borrower to repay a certain sum of money to a certain person or bearer on demand or on a specified date

_____i. Contract or receipt signed by a common carrier agreeing to deliver the described freight to a given person at a stated place

1. Credit
2. Interest charge
3. Check
4. Draft
5. Promissory note
6. Mortgage
7. Lien
8. Warehouse receipt
9. Bill of lading
10. Release
11. Sales contract
12. Consumer credit
13. Short term credit
14. Intermediate term credit
15. Long term credit

_____j. Signed written order on a bank to pay a certain sum of money on demand to the bearer of the check or to the order of a named person

_____k. Receipt given by a warehouseman for goods received by him for storage in his warehouse

_____l. Order from one party to another directing that party to pay money to a third party; similar to a check

_____m. Use of borrowed capital which is obtained with a promise to repay the borrowed capital at a future date

_____n. Loan usually made for one year or less

_____o. Transfer of a person's interest or right in property to another who has an interest in and usually possession of it

2. Select from the list below characteristics a lender should look for in a borrower by placing an "X" in the blanks.

_____a. Character

_____b. Managerial ability

_____c. Ability to repay

_____d. Purpose of the loan

_____e. Lending policies

_____f. Security for the loan

_____g. Financial position

3. Select from the list below characteristics a borrower should look for in a lender by placing an "X" in the blanks.

_____a. Character

_____b. Total person

_____c. Lending policies

_____d. Permanence and dependability

_____e. Cost of the loan

_____f. Ability to repay

4. List five main sources of credit.

   a.

   b.

   c.

   d.

   e.

5. List five purposes of a loan.

   a.

   b.

   c.

   d.

   e.

6. Discuss the factors indicating that borrowing is a good business practice.

7. State three causes for poor repayment ability of a loan.

   a.

   b.

   c.

8. Identify the following credit instruments.

RECEIPT

XYZ Farmers Cooperative Association
Random, Kansas (Specimen)

LICENSED AND BONDED UNDER THE UNITED STATES WAREHOUSE ACT

RECEIVED FROM XYZ Farmers Cooperative Association OF Random, Kansas

Date Issued	Kind of Grain	Grade	Bushels	Net Pounds
11 7 67	Milo	No. 2 YM	0	2,240,000
				2,240,000

ISSUED AT Random, Kansas 11-7-67

John Doe

KCC Wheat Code No.

The Undersigned Warehouseman Claims A Lien On Said Grain For Charges And Liabilities As Follows:

Date Storage Paid Through: Mo. 4 Day 1 Yr. 68

Handling and other accrued charges according to the tariff of the company. Full amount of charges furnished on request.

a. _____

RANDOM, KANSAS December 29, 19 61 NO. 147

PLANTERS STATE BANK OF RANDOM

PAY TO THE ORDER OF Joe Green $1500.00

Fifteen hundred and no/100 DOLLARS

John Brown

Cash rent

b. _____

FICB No. _____

$30,485.00

December 1, 1962 after date, for value received, we promise to pay to the order of

RANDOM PRODUCTION CREDIT ASSOCIATION

at its office in the City of Random, Kansas

THIRTY THOUSAND FOUR HUNDRED EIGHTY FIVE & no/100 Dollars,

with interest at the rate of 6 per centum per annum from date until paid. In the event this note is placed in the hands of an attorney for collection we further agree to pay such reasonable attorney's fees and costs of collection as may be permitted by law to be charged. The sureties, indorsers, and guarantors of this note severally waive presentment, demand, protest and notice of protest and of nonpayment thereof, and expressly agree that the payee or its assigns, at or after maturity, may extend the time of payment of the whole or any part thereof from time to time without notice. This note shall be governed by the laws of the state where payable and is secured by chattel mortgage.

John Brown
John Brown

Nanty Brown
Nanty Brown

PCA 610 7-58

L BROWN, JOHN & NANCY

December 13, 1961

RANDOM PCA

Date	Advances		Payments		Balance	
12/15/61	6625	00			6625	00

C. _____

To: RANDOM PRODUCTION CREDIT ASSOCIATION
RANDOM, KANSAS

October 23, 1962

PAY TO THE ORDER OF John Jones $14,990.00

Fourteen thousand nine hundred ninety & no/100 DOLLARS

NUMBER	SEX AND AGE	BREED DESCRIPTION BRANDS	WEIGHT	HEAD VALUE	AMOUNT
150	steer calves	Hereford	400#	99.93	$14,990.00

FOR VALUE RECEIVED I HEREBY ASSIGN, TRANSFER, SELL AND SET OVER TO THE ABOVE NAMED ASSOCIATION, ALL MY RIGHT, TITLE, AND INTEREST IN AND TO THE LIVESTOCK OR OTHER PROPERTY DESCRIBED HEREIN.

RANDOM STATE BANK
NAME OF BANK

RANDOM, KANSAS
TOWN

John Brown
PRODUCER

d. _____

9. List five factors to consider when writing a check.

a.

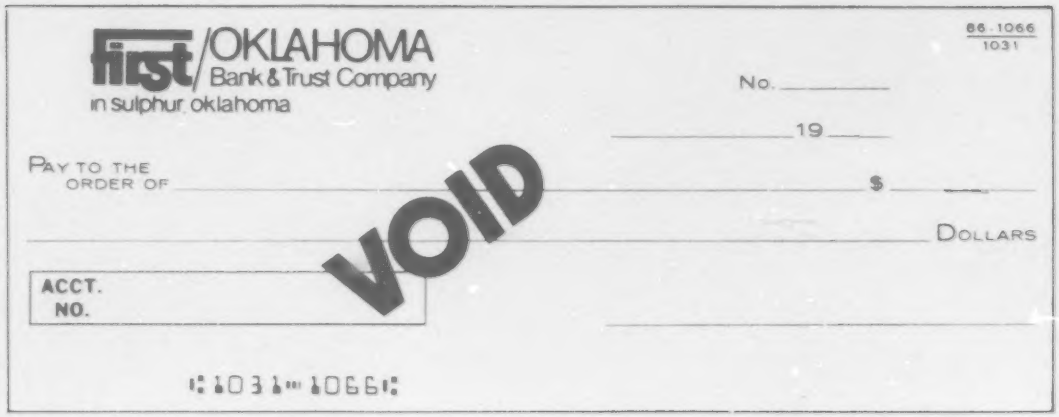
b.

c.

d.

e.

10. Write a check to Sam White for $342.50 for purchase of cattle.


first/OKLAHOMA
Bank & Trust Company
in sulphur, oklahoma

66-1066
1031

No. _____

_____ 19 ____

PAY TO THE ORDER OF _____ $ _____

_____ DOLLARS

VOID

ACCT. NO.

⑆1031⑈1066⑆

11. Calculate the interest for a farmer who borrows $10,000 which cost him $500 for 24 months to be paid monthly.

$$\text{True annual interest rate} = \frac{\text{Total of finance charges}}{\text{1/2 original loan}} \times \frac{\text{No. of payments}}{\text{No. of years}} \times \frac{1}{\text{No. of payments plus one}}$$

FARM CREDIT
UNIT II

ANSWERS TO TEST

1.

a. 6	f. 14	k. 8
b. 11	g. 2	l. 4
c. 15	h. 5	m. 1
d. 7	i. 9	n. 13
e. 12	j. 3	o. 10

2. b, c, d, f, g

3. a, c, d, e

4. Any five of the following:

   a. Merchants or dealers

   b. Individuals

   c. Commercial banks

   d. Insurance companies

   e. Federal land banks

   f. Production Credit Association

   g. Farmers Home Administration

5. Any five of the following:

   a. Buy a farm

   b. Add new acreage to the farm already owned

   c. Build a house, barn, grain storage, or other farm building that will add value to the farm or efficiency to the operation

   d. Buy equipment with which to operate the farm

   e. Buy fertilizer or other materials to make the land more productive

   f. Add improved breeding stock and increase production

   g. Buy feed for livestock or buy livestock

h. Consolidate old loans or debts into repayment schedules coordinated with new sources or times of income

i. Buy other goods or services

6. Discussion should include:

a. Additional income

b. Increase in size of operation

c. Product price rise

d. Sufficient repayment capacity

e. Individual's ability as a manager

7. Any three of the following:

a. Business too small

b. Low production per unit

c. Low price per unit sold

d. High cash production costs

e. High cash overhead

f. High cash living costs

g. Borrowing above ability to repay

h. Overestimating the amount of the loan

8. a. Warehouse receipt

b. Check

c. Promissory note

d. Draft

9. Any five of the following:

a. Write in ink

b. Write plainly

c. Do not leave space between dollar sign and check amount

d. Write out amount

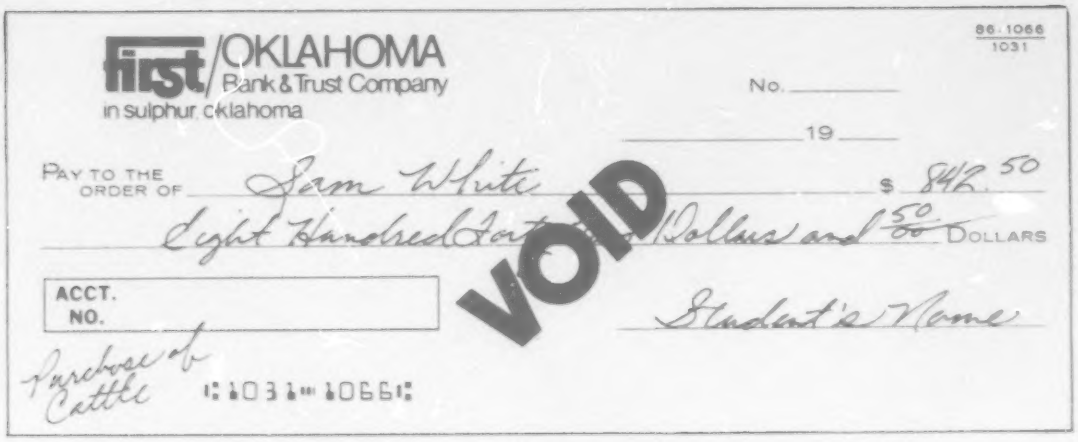
e. Do not make payable to CASH

f. Do not sign a blank check

g. Void check if a mistake is made

h. Write memo stating reason for check

10.


first/OKLAHOMA
Bank & Trust Company
in sulphur, oklahoma

86-1066
1031

No. _____

_____ 19 ____

PAY TO THE ORDER OF Sam White $ 842.50

Eight Hundred Forty Two Dollars and 50/00 DOLLARS

VOID

ACCT. NO.

Student's Name

Purchase of Cattle

⑆1031⑈1066⑆

11. $\frac{500}{5000} \times \frac{24}{2} \times \frac{1}{25} = 4.8\%$

ELEMENTARY STUDY OF SOILS
UNIT I

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to select from a list reasons that soils are important. He should be able to discuss soil formation and label layers of a soil profile. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with soils to the correct definitions.
2. Select from a list reasons that soils are important.
3. Discuss three factors that affect soil formation.
4. List five benefits of organic matter.
5. Identify three soil particles according to size.
6. Label an illustration showing the different layers of a soil profile.
7. Identify five kinds of soil structures.
8. Match colors of soils with the identifying characteristics of each.
9. Label a drawing showing the composition of an average soil.
10. Match terms indicating degree of erosion to the correct descriptions.
11. Match terms indicating soil depth to the correct descriptions.
12. Match terms indicating degrees of permeability to the correct descriptions.
13. Match terms indicating degrees of slope to the correct descriptions.

ELEMENTARY STUDY OF SOILS
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Conduct field trip to study soils.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take notes.

C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Types of Physical Weathering
2. TM 2--Soil Particles
3. TM 3--Soil Profile
4. TM 4--Soil Structure
5. TM 5--Composition of Average Soil

D. Test

E. Answers to test

II. References:

A. *Instructional Materials for Vocational Agriculture I.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

B. Millar, Charles Earnest, Lloyd M. Turk, and H. D. Foth. *Fundamentals of Soil Science.* New York: John Wiley and Sons, Inc.

C. Berger, Kermit C. *Introductory Soils.* New York: The Macmillan Company.

D. Donahue, Roy L. *Our Soils and Their Management.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

E. *Plant Science.* Columbia, Missouri: State Department of Education, Agricultural Education Section, University of Missouri.

F. *Soil Structure.* Urbana, Illinois: Vocational Agriculture Service, University of Illinois.

G. *Soil Color.* Urbana, Illinois: Vocational Agriculture Service, University of Illinois.

H. Roberts, Edd. "Land Judging in Oklahoma." Circular E-598. Stillwater, Oklahoma: Cooperative Extension Service, Oklahoma State University.

ELEMENTARY STUDY OF SOILS
UNIT I

INFORMATION SHEET

I. Terms and definitions

A. Soil--Outer layer of the earth's crust capable of supporting plant growth; made up of mineral and organic matter

B. Organic matter--General term for plant and animal material in or on the soil in all stages of decomposition

(NOTE: In chemistry, *organic* refers to the compounds of carbons.)

C. Mineral--General term for the inorganic elements in the soil

Examples: Nitrogen, potash, phosphorus

D. Soil profile--Cross section of a soil from top to bottom (Transparency 3)

E. Soil texture--Size of the individual soil particles such as sand, silt, and clay

F. Soil color--Indication of the amount of organic matter, moisture, and texture of the soil

(NOTE: Kinds of compounds contained in the soil, such as iron (Fe_2O_3), will also give a characteristic color.)

G. Soil structure--Way in which individual soil particles are grouped together to form clusters of particles (Transparency 4)

H. Rock weathering--Process by which rocks are broken down into soil-sized particles through exposure to the weather over hundreds of years

I. Leaching--Removal of soil components from the soil by the downward action of water

J. Rock--More or less consolidated mass composed of two or more minerals

K. Aggregate--Single mass or cluster of soil particles such as a clod, crumb, or granule

L. Slope--Number of feet fall in each 100 feet of distance

M. Permeability--Movement of air and water through the soil

N. Depth--Total thickness of soil from the topsoil to the parent material

INFORMATION SHEET

II. Importance of soils

A. Provide food

B. Provide energy

C. Provide shelter

III. Factors affecting soil formation

A. Parent materials

1. Rocks

a. Igneous--Derived from the molten materials in the center of the earth's crust

b. Metamorphic--Formed from the pre-existing rocks through the action of extreme heat and great pressures

c. Sedimentary--Deposited by rivers, moving glaciers, or wind

2. Moved by

a. Wind

b. Water

c. Glaciers

B. Weathering (Transparency 1)

1. Physical--Mechanical forces caused by temperature changes, such as heating and cooling, freezing and thawing, which have soil abrasive action

2. Chemical--Chemical reactions of water, oxygen, and carbon dioxide

C. Climate

1. Temperature

2. Rainfall

D. Vegetation and organisms

1. Plant--Lichens, mosses, weeds, grasses, shrubs, trees

2. Animal--Bacteria, fungi, birds, man

INFORMATION SHEET

E. Slope and drainage

1. Hillsides

a. Thin topsoil caused by erosion

b. Less plant growth

c. Less organic matter

d. Less leaching

2. Flat lands

a. Deeper topsoil

b. More vegetation

c. More organic matter

d. More leaching

IV. Benefits of organic matter

A. Makes soil porous

B. Supplies nitrogen to the plant

C. Holds water in the soil

D. Furnishes food for soil organisms

E. Stores mineral nutrients

F. Reduces leaching

G. Stabilizes soil structure

V. Soil particles (Transparency 2)

A. Sand

B. Silt

C. Clay

VI. Soil profile (Transparency 3)

A. Topsoil

B. Subsoil

C. Parent material

00129

INFORMATION SHEET

VII. Kinds of soil structures (Transparency 4)

A. Crumb--Very porous granular structure

B. Granular--Individual grains are grouped into spherical aggregates with indistinct sides

C. Platy--Aggregate has thin vertical axis and long horizontal axis; flat, tubular

D. Prismatic--Aggregate is prismlike with vertical axis of the aggregate longer than the horizontal

E. Blocky--Aggregate has equal sides; may be round or angular

F. Columnar--Aggregate is columnlike with vertical axis longer than the horizontal

VIII. Soil color

A. Dark brown to black--Regarded as being the most productive; usually contains a higher organic matter content

B. Red or reddish brown--Usually less fertile than black or dark brown soils; may contain a high iron content

C. Yellow--Usually caused by imperfect drainage

D. Gray--Low in organic matter

IX. Composition of an average soil (Transparency 5)

A. Mineral matter--48%

B. Water--25%

C. Air--25%

D. Organic matter--2%

X. Degrees of erosion

A. None to slight--Less than 25 percent of surface soil removed with no gullies

B. Moderate--25 to 75 percent of surface soil removed with or without gullies

C. Severe--75 percent or more of the surface soil removed with occasional uncrossable gullies and/or severe accumulations by wind

D. Very severe--75 percent or more of surface soil removed with frequent uncrossable gullies and/or severe accumulations by wind

INFORMATION SHEET

XI. Soil depths

A. Deep--More than 36 inches deep

B. Moderately deep--20 to 36 inches deep

C. Shallow--10 to 20 inches deep

D. Very shallow--Less than 10 inches deep

XII. Degrees of permeability

A. Very slow--Soils that have dense, heavy clay or claypan subsoils

B. Slow--Soils that have crumbly, clayey subsoils

C. Moderate--Soils that have high granular, clay loam subsoils

D. Rapid--Soils that have sandy subsoils

XIII. Degrees of slope

A. Nearly level--Less than one foot fall in each 100 feet

B. Gently sloping--One to three feet fall in each 100 feet

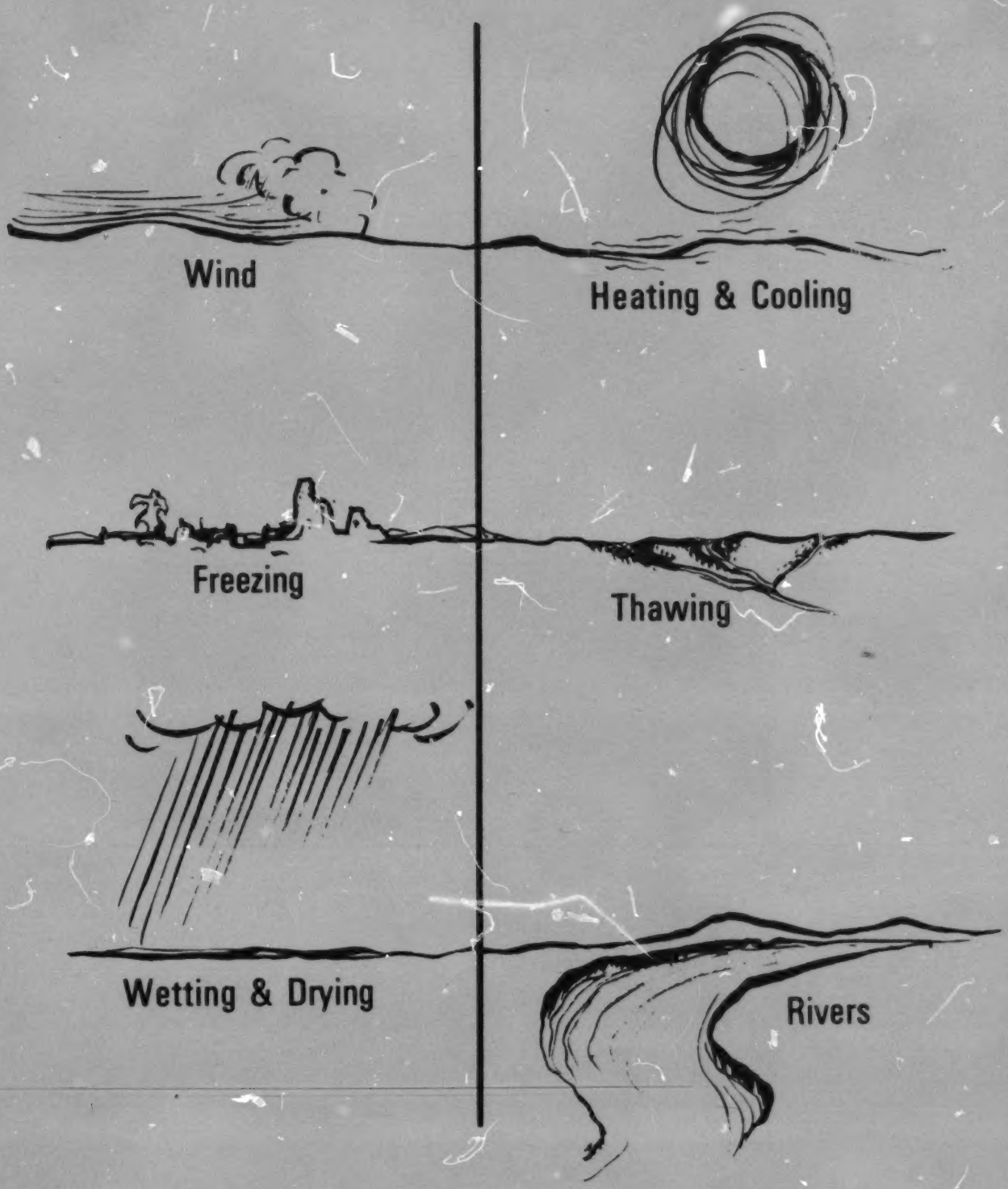
C. Moderately sloping--Three to five feet fall in each 100 feet

D. Strongly sloping--Five to eight feet fall in each 100 feet

E. Steep--Eight to twelve feet fall in each 100 feet

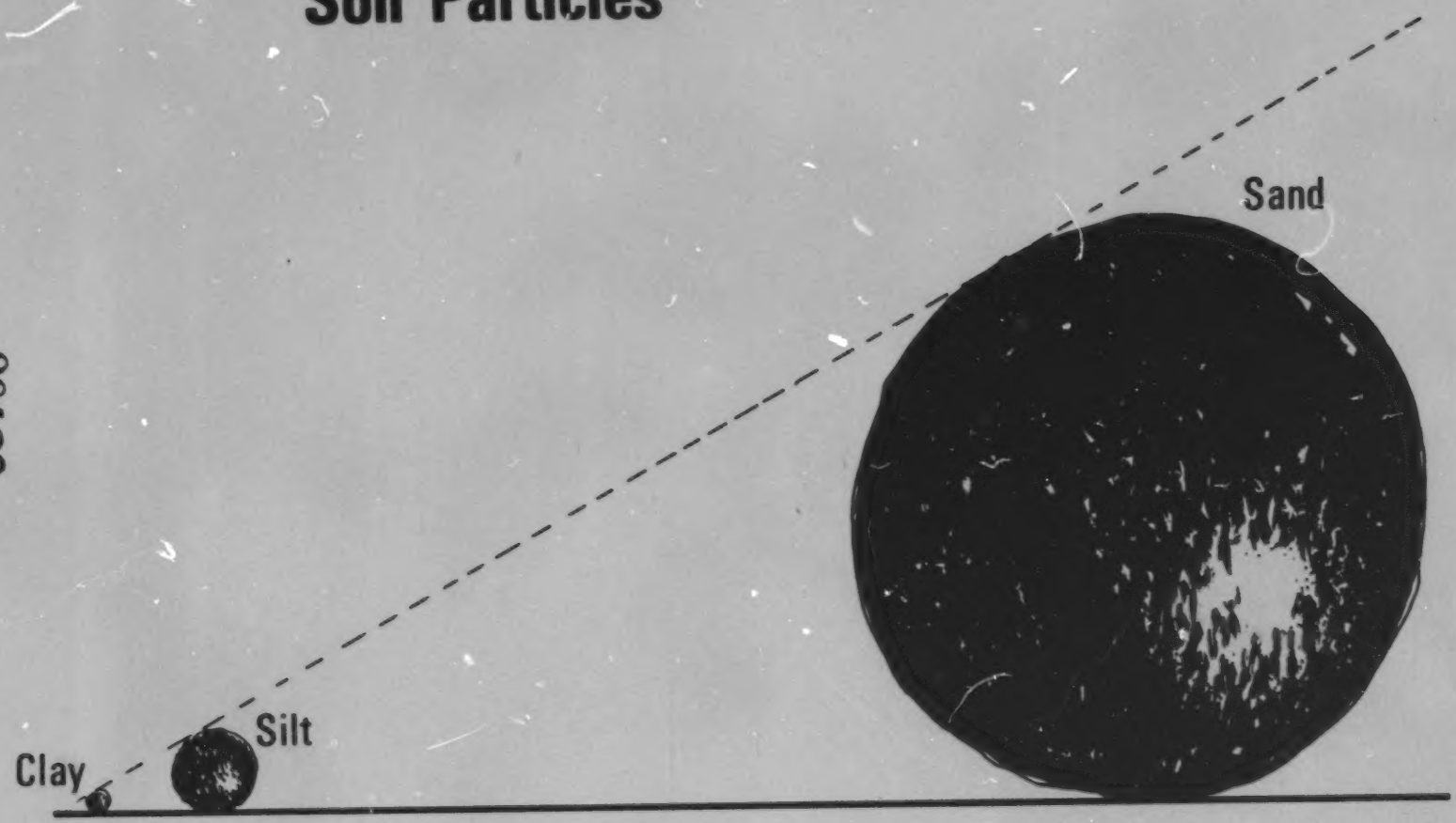
F. Very steep--More than twelve feet fall in each 100 feet

Types of Physical Weathering



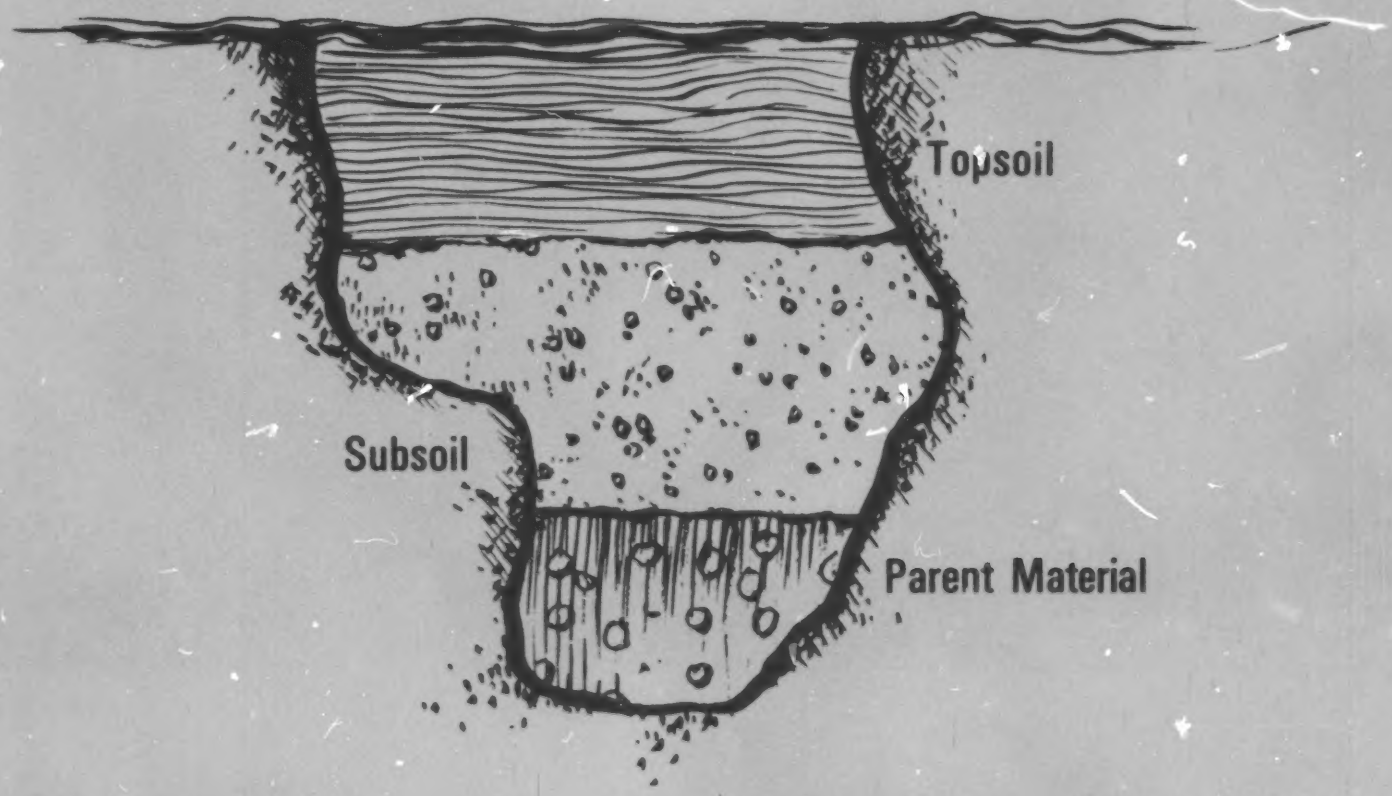
00132

Soil Particles



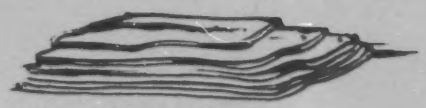
00133

Soil Profile



Soil Structure

Crumb



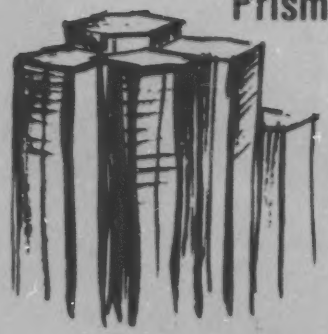
Platy

Granular

Angular Blocky

Subangular Blocky

Columnar



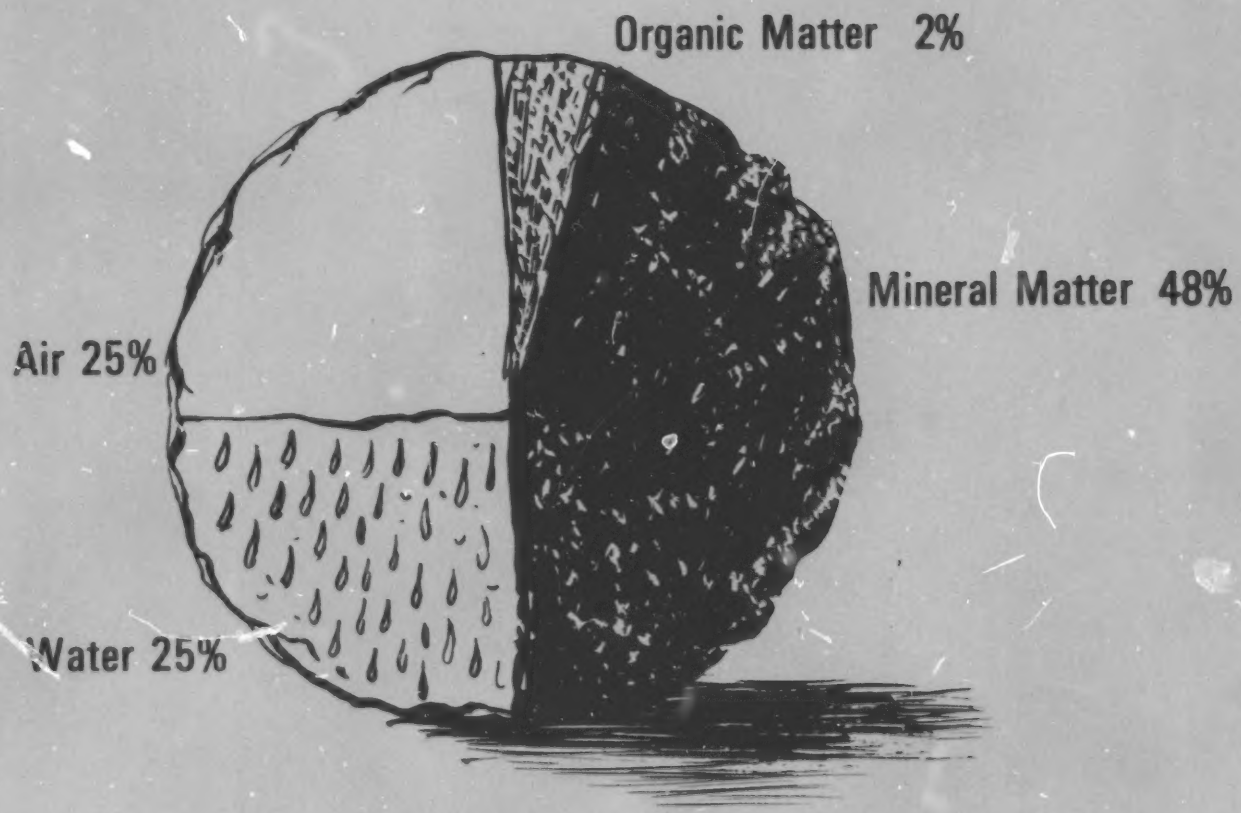
Prismatic

00135

TM 4

Ag II - 17-D

Composition of Average Soil



00136

ELEMENTARY STUDY OF SOILS
UNIT I

TEST

1. Match the terms on the right to the correct definition.

_____a. Way in which individual soil particles are grouped together to form clusters of particles

_____b. Cross section of a soil from top to bottom

_____c. Outer layer of the earth's crust capable of supporting plant growth; made up of mineral and organic matter

_____d. Total thickness of soil from the topsoil to the parent material

_____e. Single mass or cluster of soil particles such as a clod, crumb, or granule

_____f. Removal of soil components from the soil by the downward action of water

_____g. Indication of the amount of organic matter, moisture, and texture of the soil

_____h. General term for the inorganic elements in the soil

_____i. Movement of air and water through the soil

_____j. Number of feet fall in each 100 feet of distance

_____k. General term for plant and animal material in or on the soil in all stages of decomposition

_____l. More or less consolidated mass composed of two or more minerals

_____m. Process by which rocks are broken down into soil-sized particles through exposure to the weather over hundreds of years

_____n. Size of the individual soil particles such as sand, silt, and clay

1. Soil
2. Organic matter
3. Mineral
4. Soil profile
5. Soil texture
6. Soil color
7. Soil structure
8. Rock weathering
9. Leaching
10. Rock
11. Aggregate
12. Slope
13. Permeability
14. Depth

2. Select from the list below reasons that soils are important by placing an "X" in the blanks.

_____a. Holds the earth together

_____b. Provides food

_____c. Provides energy

_____d. Provides a base on which to build houses

_____e. Provides shelter

_____f. Provides insulation

3. Discuss three factors that affect soil formation.

4. List five benefits of organic matter.

a.

b.

c.

d.

e.

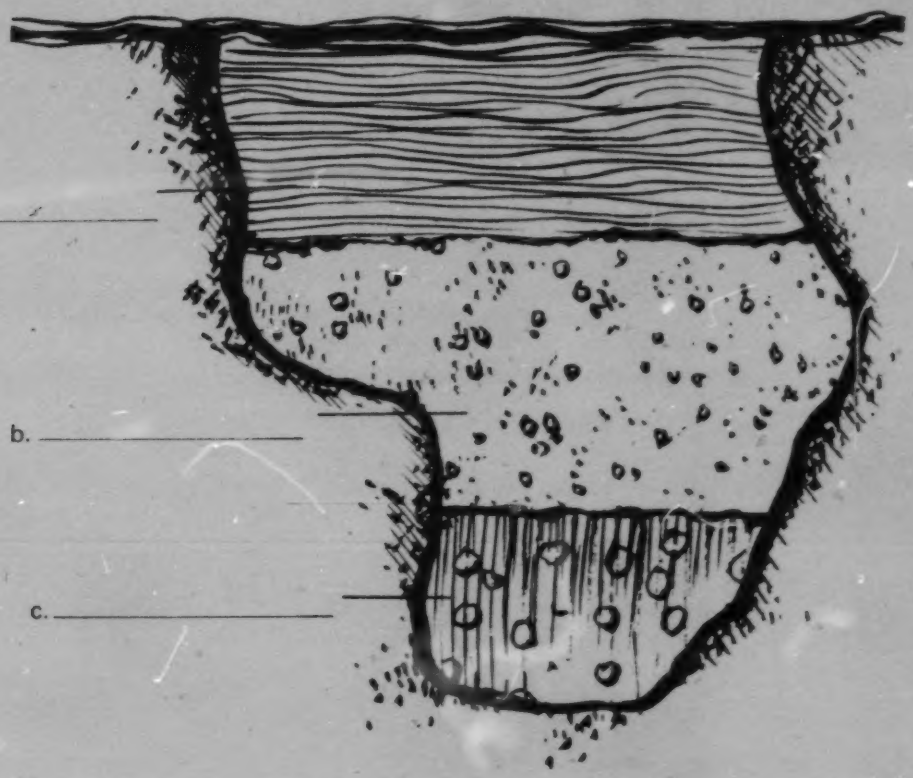
5. Identify three soil particles according to size.

a. _____

b. _____

c. _____

6. Label the drawing below showing the different layers of a soil profile.

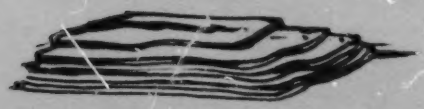


a. _____

b. _____

c. _____

7. Identify five kinds of soil structures.

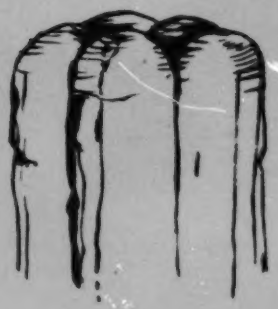


a. _____

b. _____

c. _____

d. _____

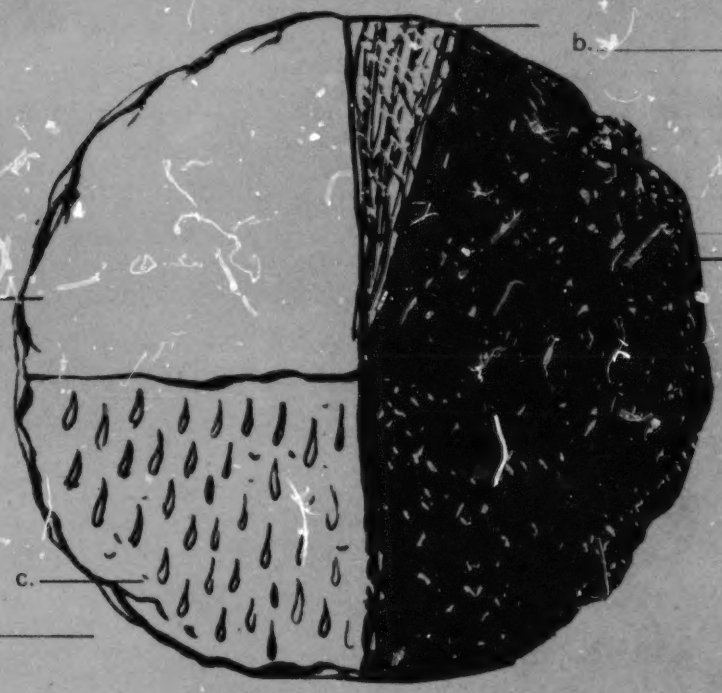


e. _____

8. Match the color of soil on the right to the correct characteristic.

_____a. Usually caused by imperfect drainage	1. Dark brown to black
_____b. Low in organic matter	2. Red or reddish brown
_____c. Regarded as being the most productive; usually contains a higher organic matter content	3. Yellow
_____d. Usually less fertile than black or dark brown soils; may contain a high iron content	4. Gray

9. Label the drawing below showing composition of an average soil.



10. Match the terms indicating degree of erosion on the right to the correct description.

_____a. 75 percent or more of the surface soil removed with occasional uncrossable gullies and/or severe accumulations by wind	1. None to slight
_____b. 75 percent or more of the surface soil removed with frequent uncrossable gullies and/or severe accumulations by wind	2. Moderate
_____c. 25 to 75 percent of surface soil removed with or without gullies	3. Severe
_____d. Less than 25 percent of surface soil removed with no gullies	4. Very severe

11. Match terms indicating soil depth on the right to the correct description.

_____a. More than 36 inches deep	1. Deep
_____b. 20 to 36 inches deep	2. Moderately deep
_____c. 10 to 20 inches deep	3. Shallow
_____d. Less than 10 inches deep	4. Very shallow

12. Match the terms indicating degrees of permeability on the right to the correct description.

_____	a. Soils that have sandy subsoils	1.	Very slow
_____	b. Soils that have crumbly, clayey subsoils	2.	Slow
_____	c. Soils that have dense, heavy clay or claypan subsoils	3.	Moderate
		4.	Rapid
_____	d. Soils that have high granular, clay loam subsoils		

13. Match the terms indicating degrees of slope on the right to the correct description.

_____	a. Less than one foot fall in each 100 feet	1.	Nearly level
_____	b. Three to five feet fall in each 100 feet	2.	Gently sloping
_____	c. Eight to twelve feet fall in each 100 feet	3.	Moderately sloping
_____	d. One to three feet fall in each 100 feet	4.	Strongly sloping
_____	e. Five to eight feet fall in each 100 feet	5.	Steep
_____	f. More than twelve feet fall in each 100 feet	6.	Very steep

ELEMENTARY STUDY OF SOILS
UNIT I

ANSWERS TO TEST

1.

a. 7	h. 3
b. 4	i. 13
c. 1	j. 12
d. 14	k. 2
e. 11	l. 10
f. 9	m. 8
g. 6	n. 5

2. b, c, e

3. Discussion may include any three of the following:

   a. Parent materials

      1) Rocks

         a) Igneous--Derived from the molten materials in the center of the earth's crust

         b) Metamorphic--Formed from the pre-existing rocks through the action of extreme heat and great pressures

         c) Sedimentary--Deposited by rivers, moving glaciers, or wind

      2) Moved by

         a) Wind

         b) Water

         c) Glaciers

   b. Weathering

      1) Physical--Mechanical forces caused by temperature changes, such as heating and cooling, freezing, and thawing, which have soil abrasive action

      2) Chemical--Chemical reactions of water, oxygen, and carbon dioxide

c. Climate

1) Temperature

2) Rainfall

d. Vegetation and organisms

1) Plant--Lichens, mosses, weeds, grasses, shrubs, trees

2) Animal--Bacteria, fungi, birds, man

e. Slope and drainage

1) Hillsides

a) Thin topsoil caused by erosion

b) Less plant growth

c) Less organic matter

d) Less leaching

2) Flat lands

a) Deeper topsoil

b) More vegetation

c) More organic matter

d) More leaching

4. Any five of the following:

a. Makes soil porous

b. Supplies nitrogen to the plant

c. Holds water in the soil

d. Furnishes food for soil organisms

e. Stores mineral nutrients

f. Reduces leaching

g. Stabilizes soil structure

5. a. Sand
   b. Silt
   c. Clay
6. a. Topsoil
   b. Subsoil
   c. Parent material
7. a. Platy
   b. Granular
   c. Crumb
   d. Prismatic
   e. Columnar
8. a. 3
   b. 4
   c. 1
   d. 2
9. a. Air
   b. Organic matter
   c. Water
   d. Mineral matter
10. a. 3
    b. 4
    c. 2
    d. 1
11. a. 1
    b. 2
    c. 3
    d. 4

12. a. 4
    b. 2
    c. 1
    d. 3
13. a. 1
    b. 3
    c. 5
    d. 2
    e. 4
    f. 6

SOIL CONSERVATION PRACTICES
UNIT II

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to list types of erosion and management practices that aid in conservation. He should also be able to select from a list factors that determine cropping systems and conservation practices for reducing erosion. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with soil conservation practices to the correct definitions.
2. List two types of erosion.
3. Select from a list conservation practices for reducing wind erosion.
4. List four categories of water erosion.
5. Select from a list factors that determine the type of cropping system to use.
6. List four management practices that aid in erosion control.
7. Survey his home farm to see how he rates as an FFA conservationist.
8. Survey his home community.
   a. List five examples of good conservation practices.
   b. List five examples of poor conservation practices.

SOIL CONSERVATION PRACTICES
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss the terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Take student on field trips to see types of erosion and cropping systems.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take additional notes.

C. Complete assignment sheets.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Terracing for Erosion Control

2. TM 2--Crop Rotation for Erosion Control

3. TM 3--Strip-Cropping for Erosion Control

D. Assignment sheets

1. Assignment Sheet #1--How Do You Rate as an FFA Conservationist?

2. Assignment Sheet #2--Locating Good and Poor Conservation Practices

E. Test

F. Answers to test

II. References:

A. Foster, Albert B. *Approved Practice in Soil Conservation*. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1964.

B. Donahue, Roy L. *Our Soil and Their Management*. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1963.

C. Millar, Charles Earnest, and Lloyd M. Turk. *Fundamentals of Soil Science*. New York: John Wiley and Sons, Inc., 1955.

D. Berger, Kermit C. *Introductory Soils*. New York: The Macmillan Company.

E. Knuti, Leo L., Melton Korpi, and J.C. Hide. *Profitable Soil Science*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970.

F. *Instructional Materials for Vocational Agriculture I*. College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

III. Other Materials--There are many good soil conservation films that are available. Check with Curriculum and Instructional Materials Center, 1515 West Sixth Avenue, Stillwater, Oklahoma 74074 or Oklahoma State University Audio-Visuals Center.

SOIL CONSERVATION PRACTICES
UNIT II

INFORMATION SHEET

I. Terms and definitions

A. Erosion--Removal of soil by wind and/or water

B. Water outlet--Ditch which carries the excess water from farm

C. Terracing--Structure designed to slow down running water and control erosion on sloping land (Transparency 1)

D. Crop rotation--Rotation of crops on a field from one crop to another (Transparency 2)

E. Strip-cropping--Practice of growing soil-conserving and soil-depleting crops in alternate strips running perpendicular to the slope of the land or to the direction of prevailing winds for the purpose of reducing erosion (Transparency 3)

F. Diversion ditch--Ditch which prevents erosion by diverting water around a field rather than across

G. Cover crop--Crop used to cover the soil surface to decrease erosion

II. Types of erosion

A. Wind

B. Water

III. Wind erosion conservation practices

A. Strip-cropping

B. Prevention of burning

C. Prevention of overgrazing

D. Moisture conservation

E. Emergency cover crops

F. Emergency tillage operations

G. Stubble mulching

H. Shelterbelt of trees

INFORMATION SHEET

IV. Categories of water erosion

A. Splash

B. Sheet

C. Rill

D. Gully

V. Factors determining cropping systems

A. Slope

B. Erodibility

C. Drainage

D. Moisture

E. Depth

F. Fertility

G. Economics

VI. Management practices that aid in erosion control

A. Wise use of land

B. Water control systems

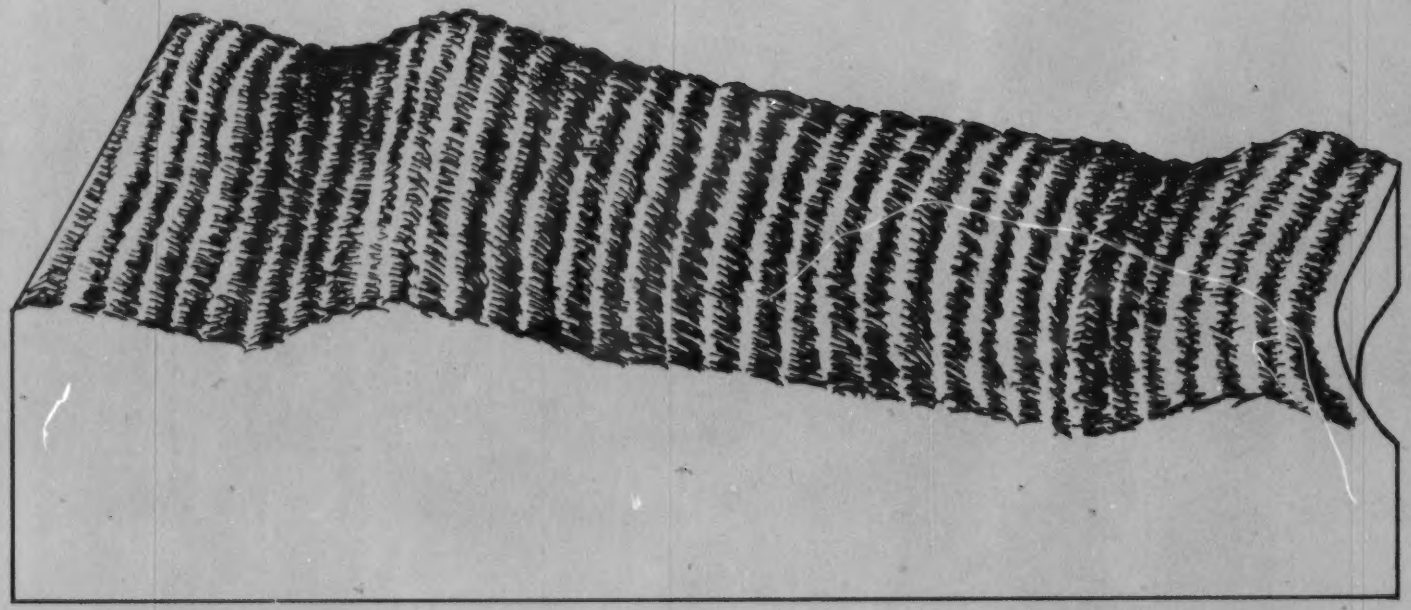
1. Terracing
2. Diversion ditches
3. Strip-cropping
4. Crop rotation
5. Water sullets
6. Contour farming

C. Cover crops

D. Control of gullies

E. Use of fertilizer

Terracing for Erosion Control

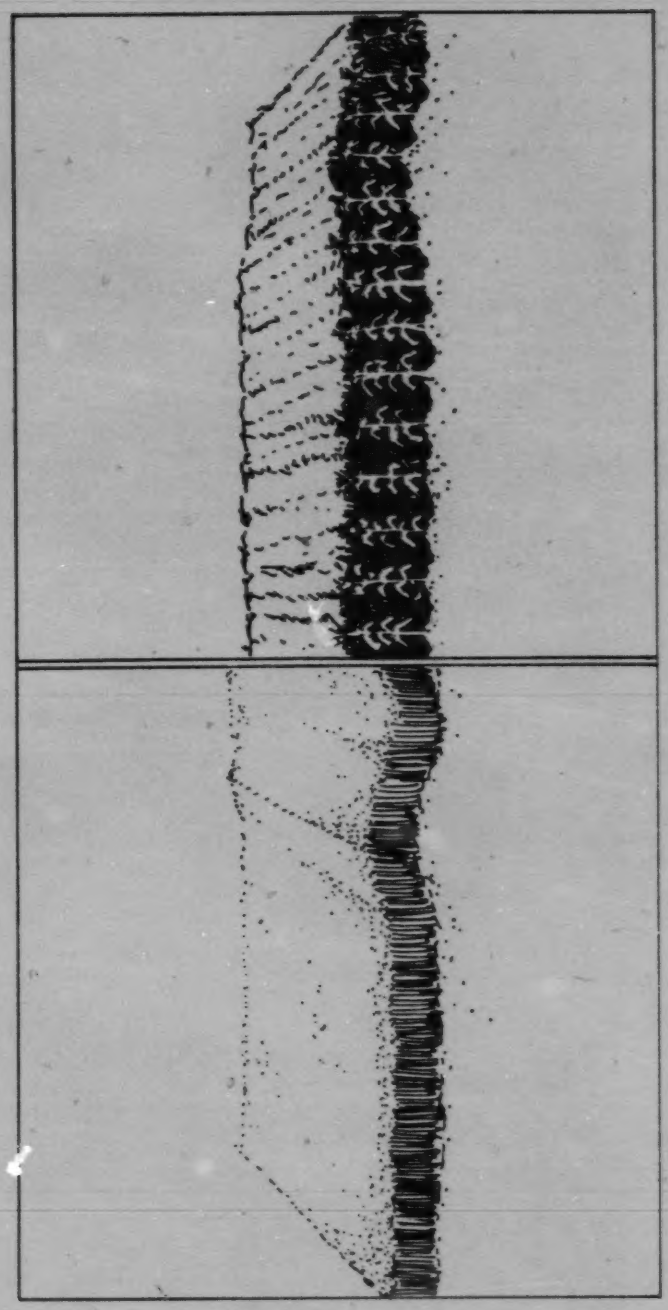


152

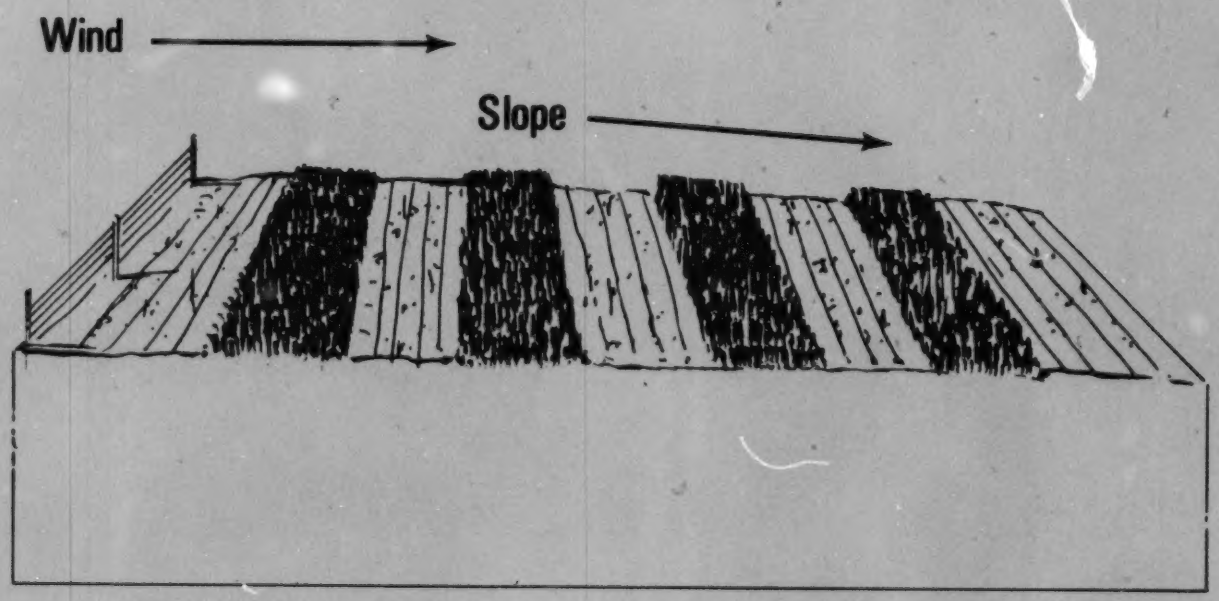
TM 1

Ag II - 37-D

Crop Rotation for Erosion Control



Strip-Cropping for Erosion Control



154

TM 3

Ag II - 41-3

SOIL CONSERVATION PRACTICES
UNIT II

ASSIGNMENT SHEET #1--HOW DO YOU RATE AS AN FFA CONSERVATIONIST?*

Answer each of the questions below and on the following pages. Turn in to the instructor. If the question applies to you or your farming operation, answer YES; if it does not apply to you, answer NO.

		YES	NO
1.	Are droughts on your farm less severe than they used to be?	☐	☐
2.	Can you cultivate as soon after a rain as you once could?	☐	☐
3.	Do the rains seem to soak into your soil faster and deeper than they once did?	☐	☐
4.	Do streams flood less frequently?	☐	☐
5.	Do your fields drain properly?	☐	☐
6.	Are your crop yields increasing?	☐	☐
7.	When you plow, does your soil seem darker in color than it was a few years ago?	☐	☐
8.	Do you notice fewer clay spots in the fields when you plow?	☐	☐
9.	Are gullies getting smaller in size and fewer in number?	☐	☐
10.	Does your soil drift against the fences less now than it once did?	☐	☐
11.	When you dig post holes, do you find plant roots all the way to the bottom of the holes?	☐	☐
12.	After a beating rain, does the surface of your soil still appear open and porous like a sponge?	☐	☐
13.	Is it becoming less difficult to prepare a good seedbed?	☐	☐
14.	Does your soil crust over less now than it once did?	☐	☐
15.	Do you spread manure on your land as fast as it is produced?	☐	☐

ASSIGNMENT SHEET #1

		YES	NO
16.	Do you grow a soil-building legume at least one year in three?	☐	☐
17.	Do you plow under or incorporate all crop residues into your soil?	☐	☐
18.	Do your crops grow better in dry weather than they once did?	☐	☐
19.	Does it take less power to plow your fields than it did a few years ago?	☐	☐
20.	Do you cultivate just often enough to control weeds?	☐	☐
21.	Do you use a disk and chisel more now than you do a turning plow?	☐	☐
22.	Do you follow the recommended planting dates for all farm crops?	☐	☐
23.	Do you follow a recommended crop rotation plan for all fields?	☐	☐
24.	Do you plant the highest yielding varieties of crops?	☐	☐
25.	Does your cropping system produce the most possible forage for your livestock?	☐	☐
26.	Are your yields per acre as high as any in your neighborhood?	☐	☐
27.	Have you increased the productivity of all of your fields and pastures?	☐	☐
28.	Do you use as much limestone as any farmer on similar land in the neighborhood?	☐	☐
29.	Do you fertilize your fields and pastures as much as do any of your neighbors?	☐	☐
30.	Do you graze the right number of livestock on your range and pasture land?	☐	☐
31.	Are your livestock healthy?	☐	☐

ASSIGNMENT SHEET #1

		YES	NO
32.	Do you have a home garden as good as any in your neighborhood?	☐	☐
33.	Have you had your soil tested on all gardens, fields, and pastures within the past three years?	☐	☐

Your rating as an FFA conservationist:

Total answers which are YES_____ NO____

I am Good . . . . . (22-33 YES answers)
Fair . . . . . (11-21 YES answers)
Poor . . . . . (0-10 YES answers)

*The contents of Assignment Sheet #1 have been reprinted by permission from *Our Soils and Their Management* by Roy L. Donahue, published by The Interstate Printers and Publishers, Inc., Danville, Illinois.

SOIL CONSERVATION PRACTICES
UNIT II

ASSIGNMENT SHEET #2--LOCATING GOOD AND POOR CONSERVATION PRACTICES

Survey your home community and list five examples of good conservation practices.

1.

2.

3.

4.

5.

List five examples of poor conservation practices.

1.

2.

3.

4.

5.

SOIL CONSERVATION PRACTICES
UNIT II

TEST

1. Match the terms on the right to the correct definition.

_____a. Rotation of crops on a field from one crop to another	1. Erosion
_____b. Crop used to cover the soil surface to decrease erosion	2. Water outlet
_____c. Removal of soil by wind and/or water	3. Terracing
_____d. Practice of growing soil-conserving and soil-depleting crops in alternate strips running perpendicular to the slope of the land or to the direction of prevailing winds for the purpose of reducing erosion	4. Crop rotation
_____e. Ditch which carries the excess water from the farm	5. Strip-cropping
_____f. Ditch which prevents erosion by diverting water around a field rather than across	6. Diversion ditch
_____g. Structure designed to slow down running water and control erosion on sloping land	7. Cover crop

2. List two types of erosion.

   a.

   b.

3. Select from the list below conservation practices for reducing wind erosion by placing an "X" in the blanks.

   _____a. Strip-cropping

   _____b. Prevention of burning

   _____c. Prevention of overgrazing

   _____d. Moisture conservation

   _____e. Emergency tillage operations

   _____f. Emergency cover crops

   _____g. Stubble mulching

   _____h. Shelterbelt of trees

4. List four categories of water erosion.

   a.

   b.

   c.

   d.

5. Select from the list below factors that determine the type of cropping system to use by placing an "X" in the blanks.

   _____a. Slope

   _____b. Fertility

   _____c. Drainage

   _____d. Depth

   _____e. Economics

   _____f. Row crop

6. List four management practices that aid in erosion control.

   a.

   b.

   c.

   d.

7. Survey your home farm to see how you rate as an FFA conservationist.

8. Survey your home community.

   a. List five examples of good conservation practices.

   b. List five examples of poor conservation practices.

   (NOTE: If activities 7 and 8 have not been accomplished prior to the test, ask the instructor when they should be completed.)

SOIL CONSERVATION PRACTICES
UNIT II

ANSWERS TO TEST

1. a. 4
   b. 7
   c. 1
   d. 5
   e. 2
   f. 6
   g. 3
2. a. Wind
   b. Water
3. a, b, c, d, e, f, g, h
4. a. Splash
   b. Sheet
   c. Rill
   d. Gully
5. a, b, c, d, e
6. Any four of the following:
   a. Wise use of land
   b. Water control systems
   c. Cover crops
   d. Control of gullies
   e. Use of fertilizer
7. Evaluated to the satisfaction of the instructor.
8. Evaluated to the satisfaction of the instructor.

PLANT GROWTH AND REPRODUCTION
UNIT III

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to match terms and definitions and identify the parts of a plant and flower. He should also be able to match functions and plant parts and list the steps of the photosynthesis process and factors that cause poor germination. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with plant growth and reproduction to the correct definitions.
2. Label the primary parts of a plant.
3. Match functions of plant parts to the correct parts.
4. Identify the two main types of root systems.
5. Label a drawing showing the different parts of a plant stem.
6. List the stages of seed germination.
7. Select from a list requirements for good seed germination.
8. List three factors that cause poor seed germination.
9. Select from a list substances that must be present before photosynthesis will occur.
10. List the steps in the process of manufacturing of plant food with photosynthesis.
11. Describe three ways a plant absorbs nutrients.
12. Label a drawing showing the parts of a complete flower.
13. Select from a list methods of pollination.
14. List three methods of vegetative reproduction.

PLANT GROWTH AND REPRODUCTION
UNIT III

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Plant seeds to demonstrate how germination occurs.

G. Conduct field trip to demonstrate the process of pollination or set up a demonstration in the classroom.

H. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take additional notes.

C. Observe seed during the process of germination.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Respiration vs Photosynthesis
2. TM 2--Parts of a Plant
3. TM 3--Root Types

4. TM 4--Parts of a Stem
5. TM 5--Germination of a Bean Seed (Dicot)
6. TM 6--Germination of a Corn Seed (Monocot)
7. TM 7--Photosynthesis
8. TM 8--Parts of a Flower
9. TM 9--Cross Pollination
10. TM 10--Self-Pollination
11. TM 11--Pollination by Insects

D. Test

E. Answers to test

II. References:

A. Hughes, Harold D., and Edwin R. Henson. *Crop Production.* New York: The Macmillan Company.

B. Wilson, Harold K., and A. Chester Richer. *Producing Farm Crops.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

C. Delorit, Richard J., and Henry L. Ahlgren. *Crop Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

D. Agricultural Education Department, University of Missouri. *Plant Science.* State Department of Education, Agriculture Education Section.

E. *Instructional Materials for Vocational Agriculture I.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

F. Martin, John H., and Warren H. Leonard. *Principles of Field Crop Production.* New York: The Macmillan Company, 1967.

PLANT GROWTH AND REPRODUCTION
UNIT III

INFORMATION SHEET

I. Terms and definitions

A. Embryo--Rudimentary plantlet within the seed; the germ

B. Germination--Changing of a dormant embryo to active status

C. Pollen--Male sex cells produced in the anthers of flowering plants

D. Fertilization--Union of the male (pollen) nucleus with the female (egg) cell

E. Pollination--Transfer of pollen from the anther to the stigma (Transparencies 9, 10, and 11)

F. Pistil--Seed-bearing organ of a flower; composed of the ovary, style, and stigma

G. Photosynthesis--Process by which carbohydrates are manufactured by the chlorophyll-bearing cell granules from CO_2 and water by means of the energy of sunlight

H. Ovule--Female sex cell with the immediate surrounding parts; the future seed

I. Respiration--Taking in of oxygen and giving off of carbon dioxide (Transparency 1)

(NOTE: This is the process by which plants breathe.)

J. Transpiration--Evaporation of moisture through the stoma or open pores in the leaves

K. Chlorophyll--Green vegetable pigment of plants essential in the process of photosynthesis

L. Monocotyledon--Plant having one seed leaf (cotyledon) as in grasses

M. Dicotyledon--Plant which produces two seed leaves, such as beans or cotton

N. Imperfect flower--Flower lacking either stamen or pistil

O. Perfect flower--Flower having both pistil and stamen

INFORMATION SHEET

P. Monoecious plant--Both sexes present on same plant

Q. Dioecious plant--Sexes (male and female) are on different plant

R. Rhizome--Plant stems horizontal below ground; usually sending up a plant and sending down roots at the node

S. Seed inoculation--Application of nitrogen-fixing bacteria to the seed of legumes before planting

T. Secondary root--Branch of the main root

U. Hypocotyl--Stem of the embryo or young seedling below the cotyledons

V. Primary root--Root arising from the base of a hypocotyl

II. Primary plant parts (Transparency 2)

A. Root

B. Stem

C. Leaf

D. Bud or flower

III. Functions of the plant parts

A. Root

1. Absorbs water and minerals

2. Stores food

3. Anchors and supports plant

B. Stem

1. Supports leaves

2. Aids in manufacturing plant food from leaves

3. Serves as food storage area

INFORMATION SHEET

C. Leaf

1. Manufactures food for the plant
2. Is necessary for transpiration (evaporation of water)
3. Serves as food storage

D. Bud or flower

1. Serves as site of reproduction
2. Stores food

IV. Root types (Transparency 3)

A. Taproot

Examples: Cotton, alfalfa

B. Fibrous

Examples: Grasses, cereal grains

V. Parts of a plant stem (Transparency 4)

A. Terminal bud

B. Petiole

C. Auxiliary bud

D. Abcission layer

E. Node

F. Internode

VI. Stages of seed germination (Transparencies 5 and 6)

A. Absorption of water and oxygen into the seed

B. Seed swells and seed coat ruptures

C. Primary (temporary) root goes down

D. First internode goes up

E. New leaves form and food production starts

INFORMATION SHEET

VII. Requirements for good seed germination

A. Proper temperature

(NOTE: It ranges from 32 to 120 degrees F. Most seeds germinate from 68 to 86 degrees F.)

B. Sufficient moisture

C. Ample supply of oxygen

VIII. Factors that cause poor seed germination

A. Mechanical injury (cracked grain)

B. Disease

C. Storage conditions

D. Old seed

E. Temperature too cold

F. Hard seed coat (hard-seeded legumes)

G. Drying out of soil

H. Planting too deep

I. Chemical damage (fertilizer)

J. Immature seed

IX. Substances that must be present before photosynthesis occurs

A. Light

B. Carbon dioxide (CO_2)

C. Water

D. Essential nutrients

E. Favorable temperature

F. Living cells containing chlorophyll

INFORMATION SHEET

X. Steps of photosynthesis process (Transparency 7)

A. CO_2 taken in by leaves

B. H_2O taken in by roots

C. $CO_2 + H_2O \xrightarrow[\text{chlorophyll}]{\text{light}} C_6H_{12}O_6 + O_2$ (sugar)

D. Plants convert sugar to starch or reverse the process as needed to build protein, fats, or energy

XI. Absorption of nutrients and water

A. Diffusion--Movement of gases or liquid from an area of high concentration to an area of lower concentration

B. Osmosis--Movement of a substance from the place of greater concentration through a thin, semipermeable membrane to the place of lesser concentration

C. Nonroot feeding (leaf feeding)--Nutrients and water entering plant through leaves and stems

XII. Parts of a flower (Transparency 8)

A. Pistil--Female part where egg cell originates

1. Stigma--Upper part of pistil which holds pollen

2. Style--Supports stigma

3. Ovary--Produces ovule or ovules which develop into seed or seeds

a. Ovule

b. Embryo sac

c. Pollen tube

B. Stamen--Male part of flower

1. Filament--Supports anther

2. Anther--Bears the pollen

C. Accessory organs--Protect the essential organs of the plant

1. Coralla--Petals of the flower

2. Calyx--Located below the petals

INFORMATION SHEET

3. Receptacle--Top part of the flower stalk

4. Micropyle--Opening of pollen tubes

XIII. Methods of pollination (Transparencies 9, 10, and 11)

A. Gravity

B. Wind

C. Insects

D. Man

1. Hybrids--First generation offspring of a cross between two individuals differing in one or more genes

a. Single cross--Progency obtained by crossing two inbred lines

b. Double cross--Progency resulting from crossing two single crosses

2. Mechanical pollination

E. Animals

F. Birds

XIV. Methods of vegetative reproduction

A. Tubes

B. Root

C. Stolon

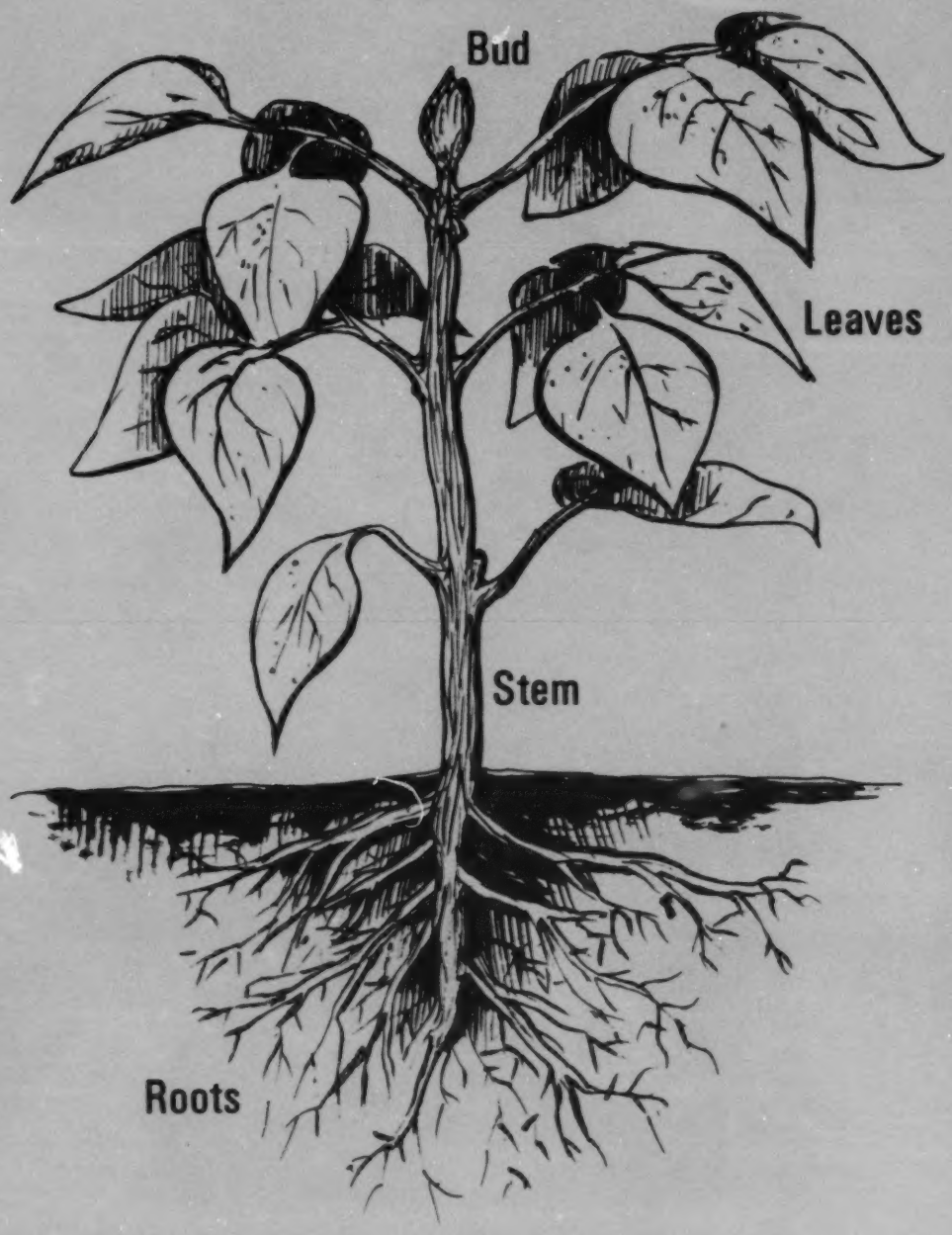
D. Stem

E. Rhizomes

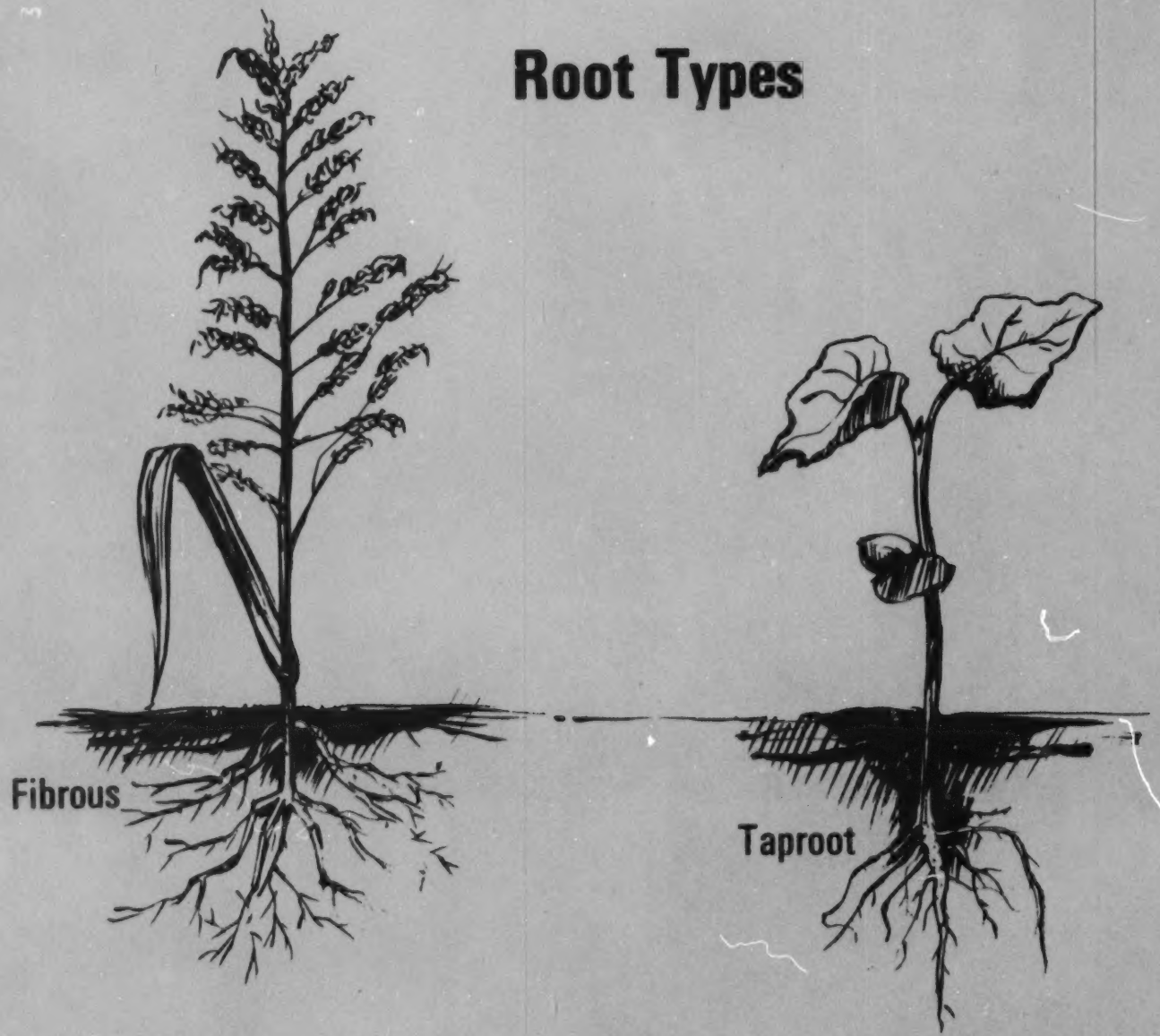
Respiration vs Photosynthesis

A Destruction Process	A Building Process
Food Consumed	Food Manufactured
Energy is Released	Sun Provides Energy
CO_2 Given Off	CO_2 Taken in Plant
Oxygen Used	Oxygen Given Off
Simple Compounds Form	Complex Compounds Form
Produces CO_2 and H_2O	Produces Sugars, Starches
Goes on Day and Night	Requires Light
Carried on in all Cells	Chlorophyll Must be Present

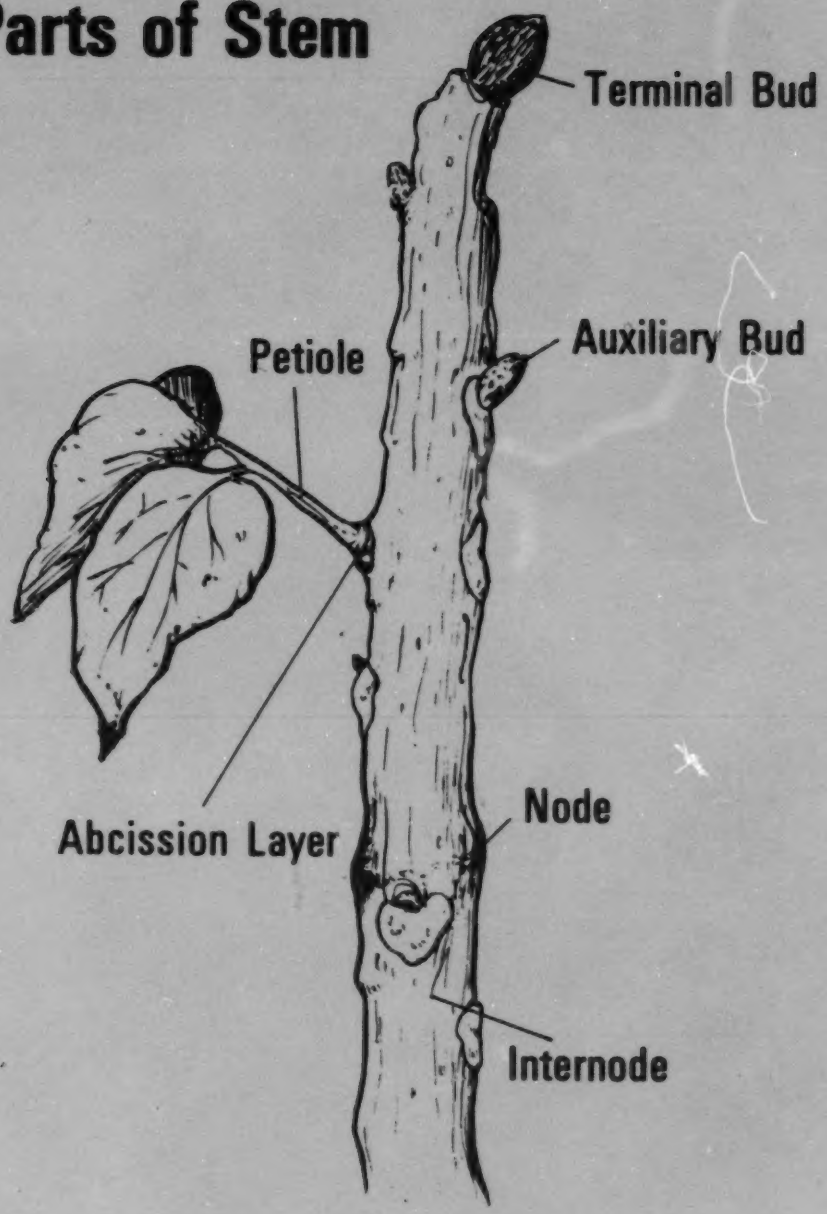
Parts of Plant



Root Types

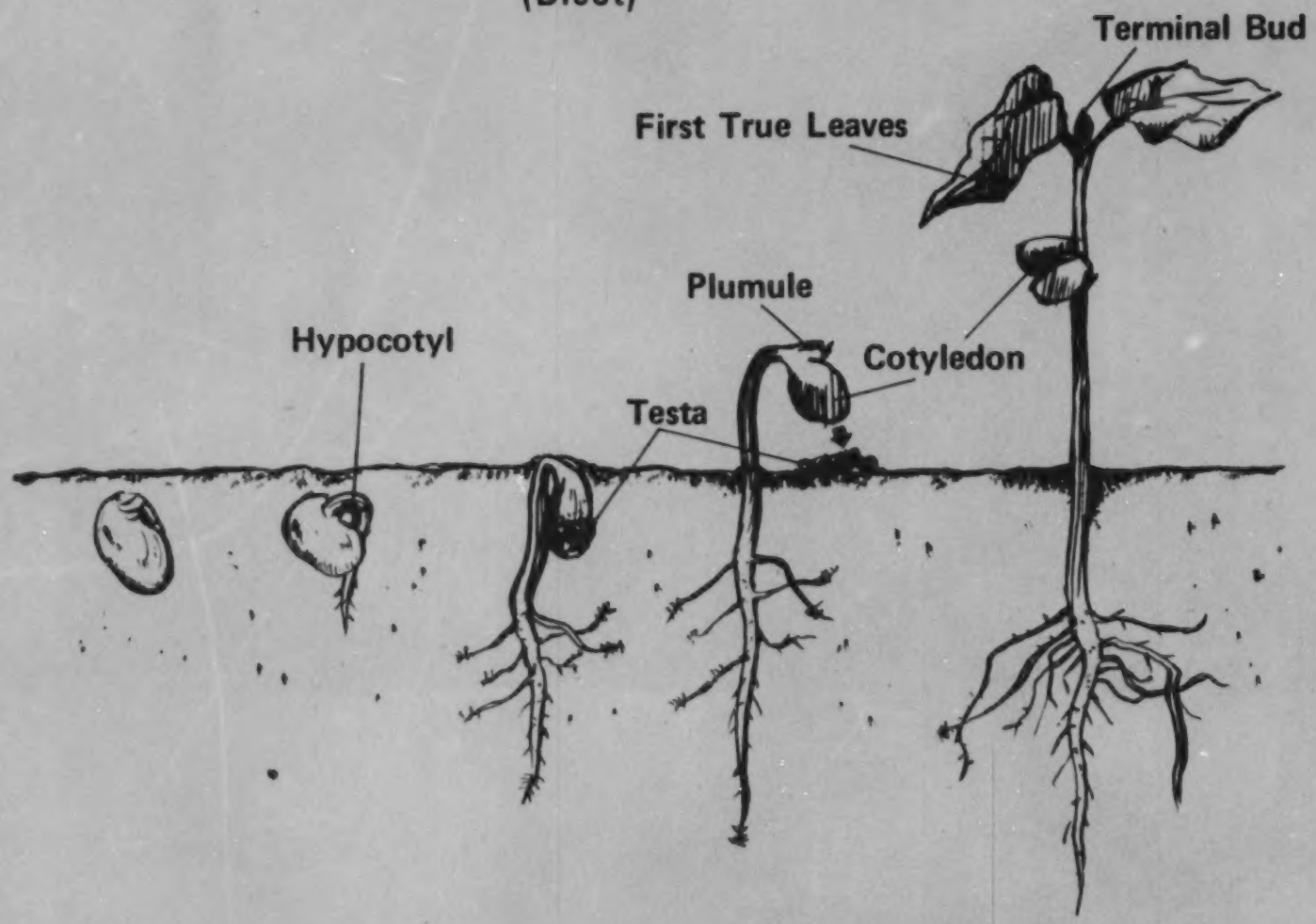


Parts of Stem



Germination of a Bean Seed

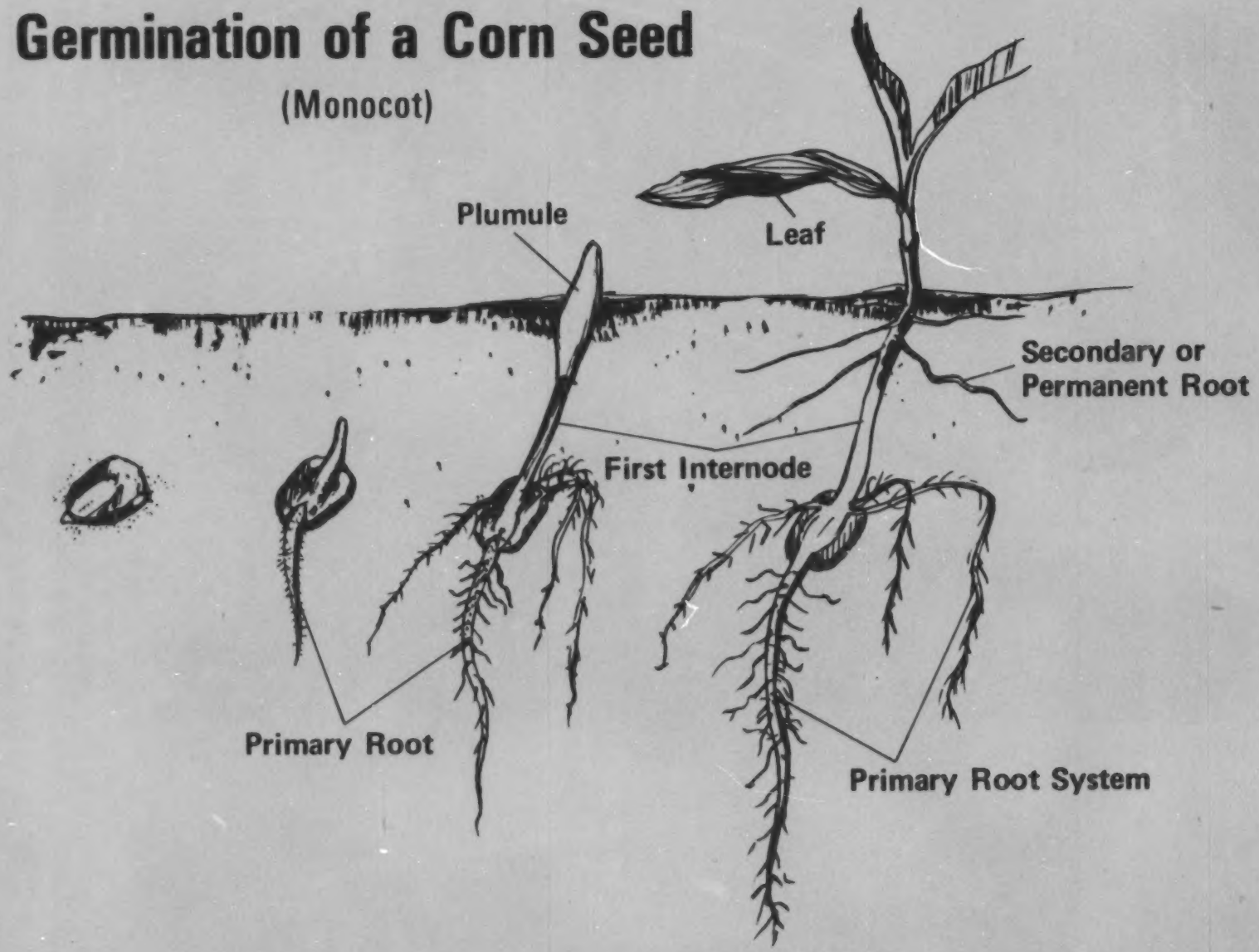
(Dicot)



00175

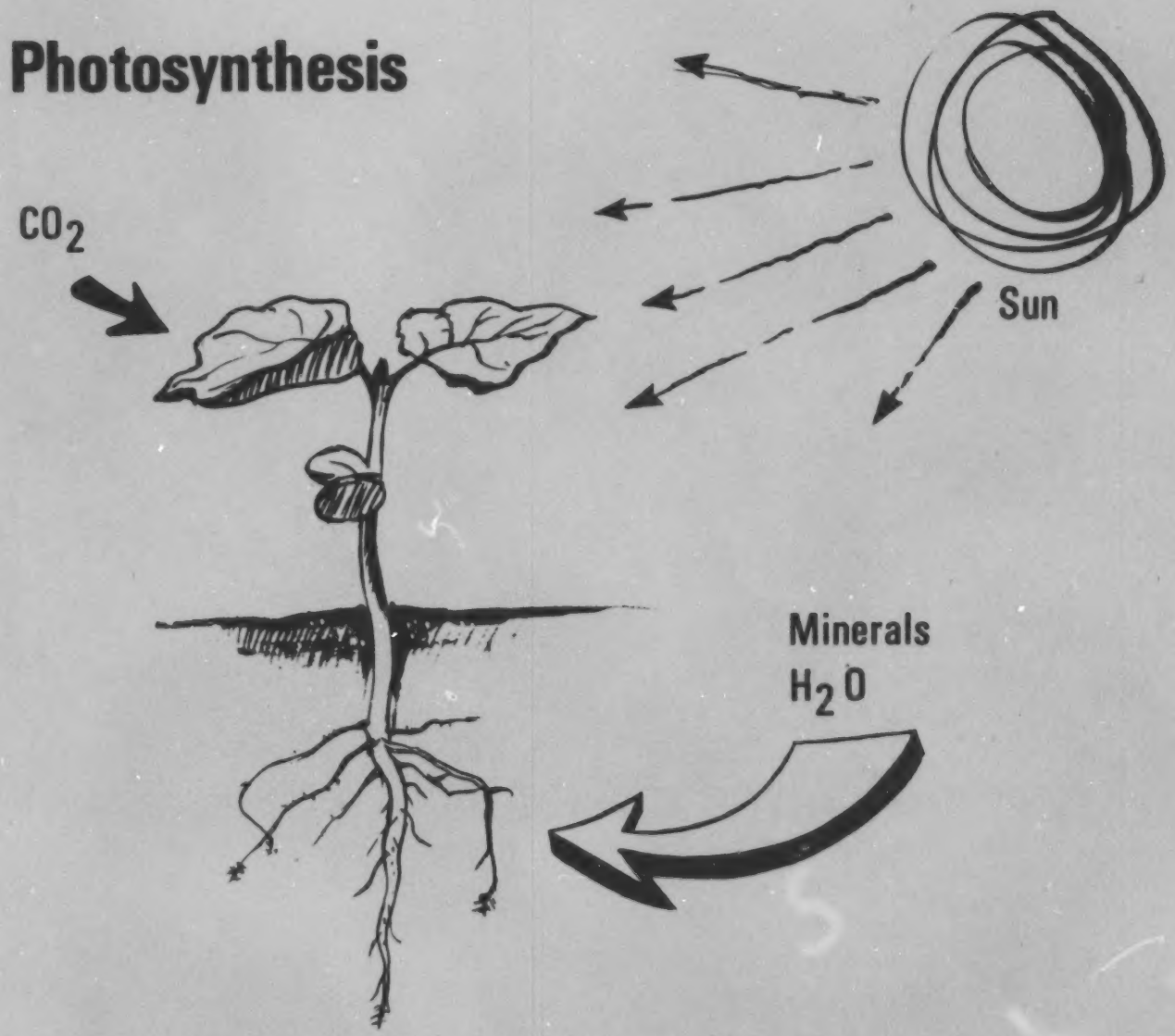
Germination of a Corn Seed

(Monocot)

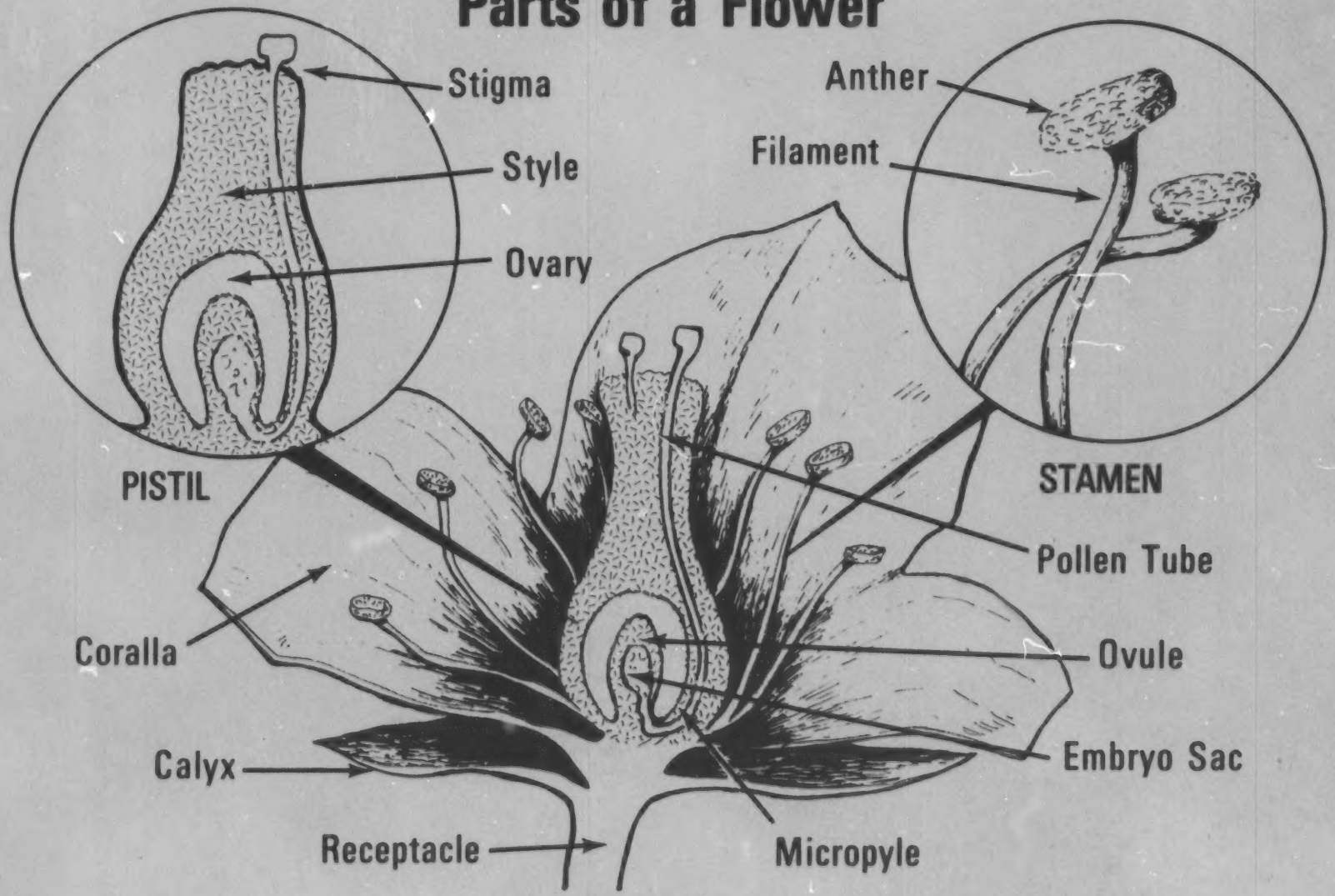


06178

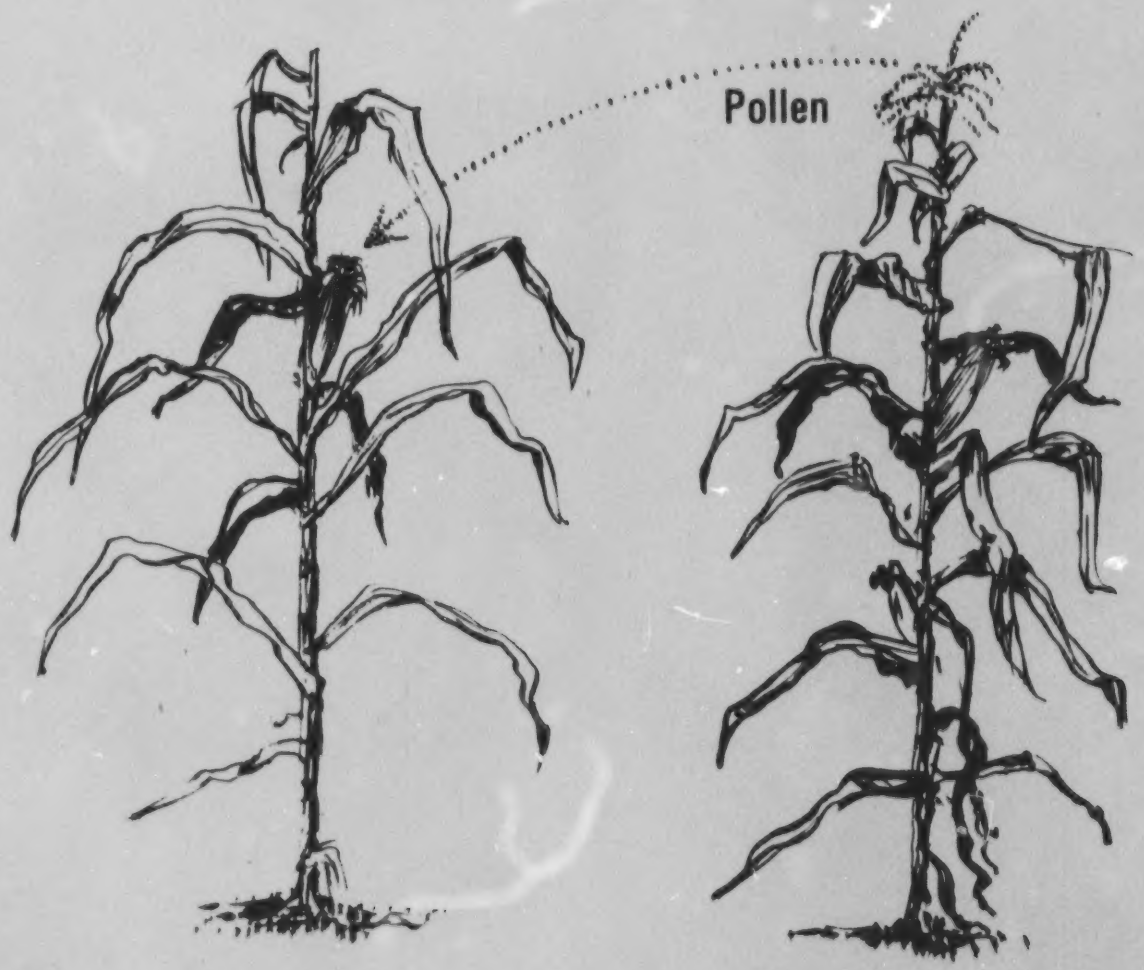
Photosynthesis



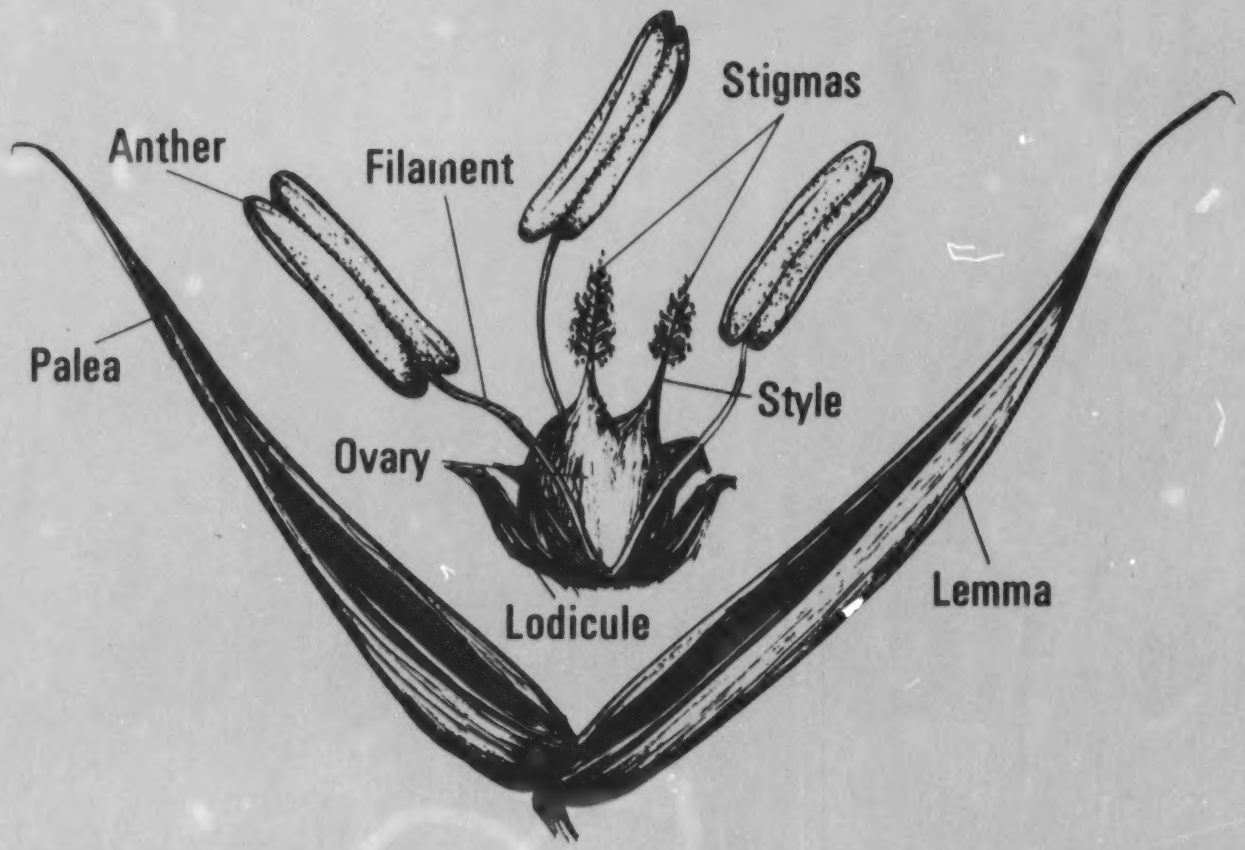
Parts of a Flower



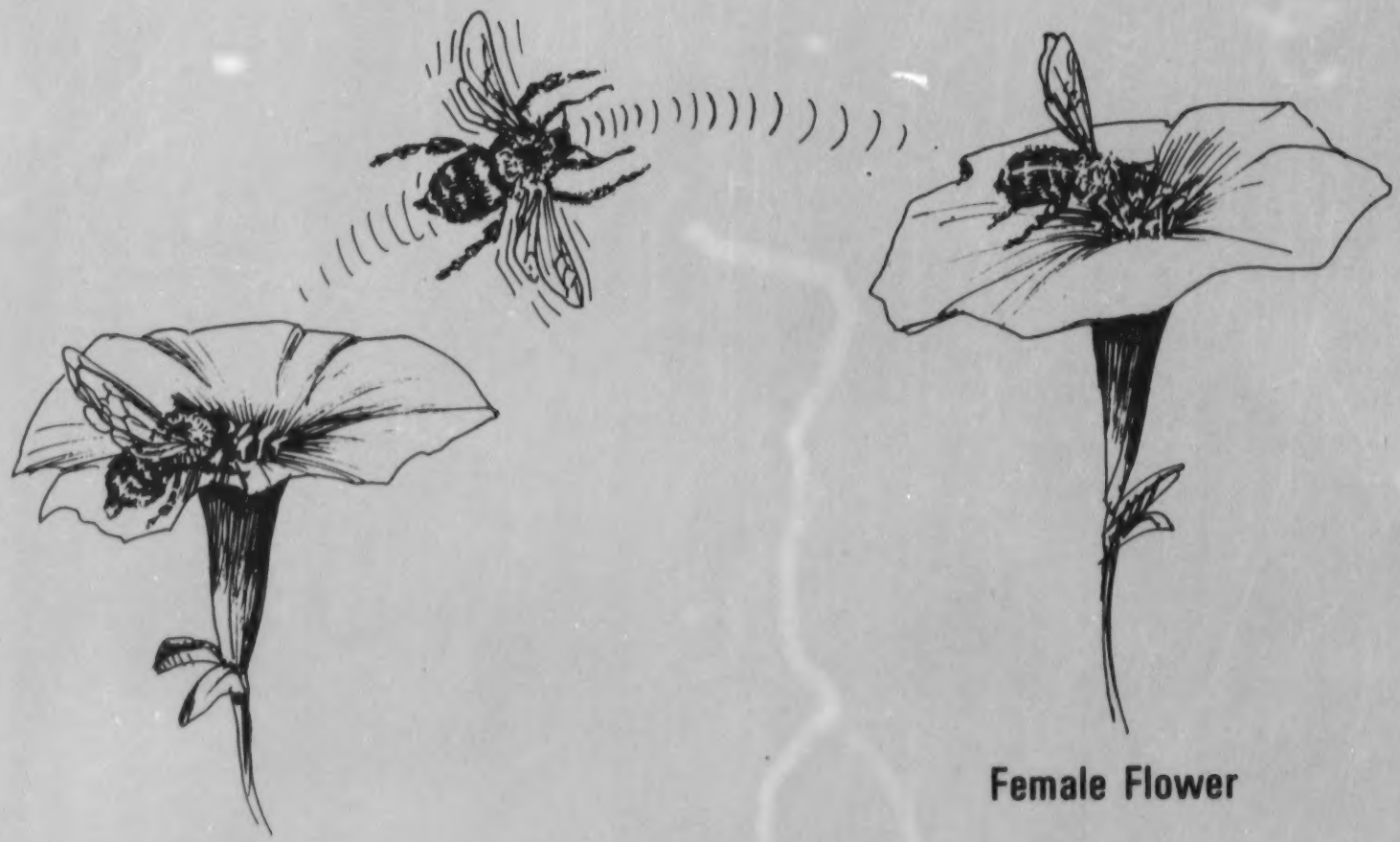
Cross Pollination



Self-Pollination



Pollination by Insects



00181

PLANT GROWTH AND REPRODUCTION
UNIT III

TEST

1. Match terms on the right to the correct definition.

_____a. Process by which carbohydrates are manufactured by the chlorophyll-bearing cell granules from CO_2 and water by means of the energy of sunlight

_____b. Flower lacking either stamen or pistil

_____c. Root arising from the base of a hypocotyl

_____d. Female sex cell with the immediate surrounding parts; the future seed

_____e. Flower having both pistil and stamen

_____f. Stem of the embryo or young seedling below the cotyledons

_____g. Seed-bearing organ of a flower; composed of the ovary, style, and stigma

_____h. Plant which produces two seed leaves, such as beans or cotton

_____i. Branch of the main root

_____j. Male sex cells produced in the anthers of flowering plants

_____k. Plant having one seed leaf (cotyledon) as in grasses

_____l. Application of nitrogen-fixing bacteria to the seed of legumes before planting

_____m. Rudimentary plantlet within the seed; the germ

_____n. Green vegetable pigment of plants essential in the process of photosynthesis

_____o. Plant stems horizontal below ground; usually sending up a plant and sending down roots at the node

1. Germination
2. Fertilization
3. Pollination
4. Embryo
5. Pollen
6. Pistil
7. Photosynthesis
8. Ovule
9. Respiration
10. Transpiration
11. Chlorophyll
12. Monocotyledon
13. Dicotyledon
14. Imperfect flower
15. Perfect flower
16. Monoecious plant
17. Dioecious plant
18. Rhizome
19. Seed inoculation
20. Secondary root
21. Primary root
22. Hypocotyl

_____p. Transfer of pollen from the anther to the stigma

_____q. Evaporation of moisture through the stoma or open pores in the leaves

_____r. Sexes (male and female) are on different plants

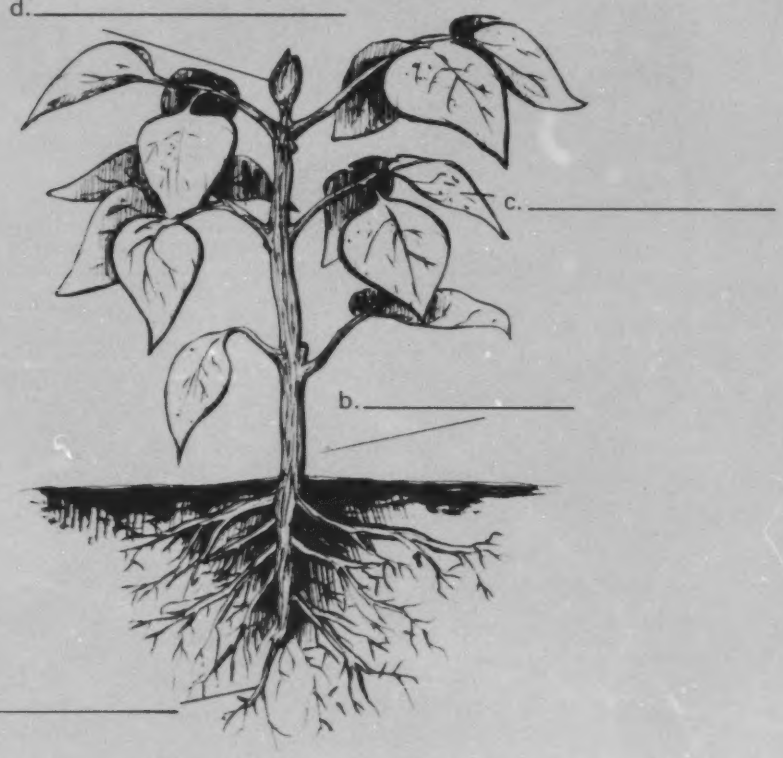
_____s. Union of the male (pollen) nucleus with the female (egg) cell

_____t. Taking in of oxygen and giving off of carbon dioxide

_____u. Both sexes present on same plant

_____v. Changing of a dormant embryo to active status

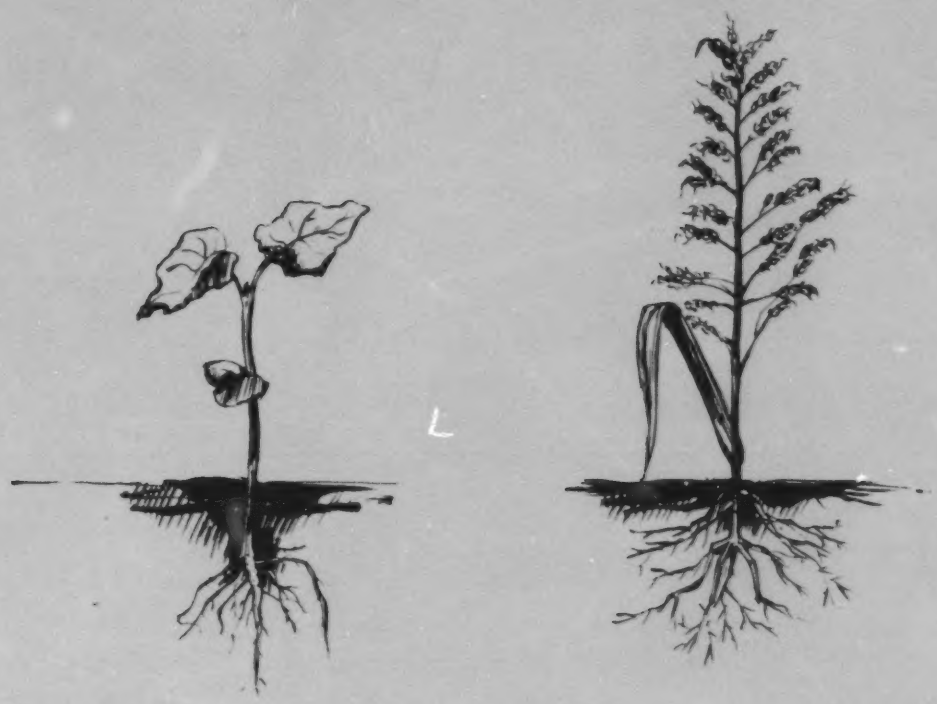
2. Label the parts of the plant illustrated below by writing the correct names in the blanks provided.



3. Match the plant parts on the right to the correct set of functions.

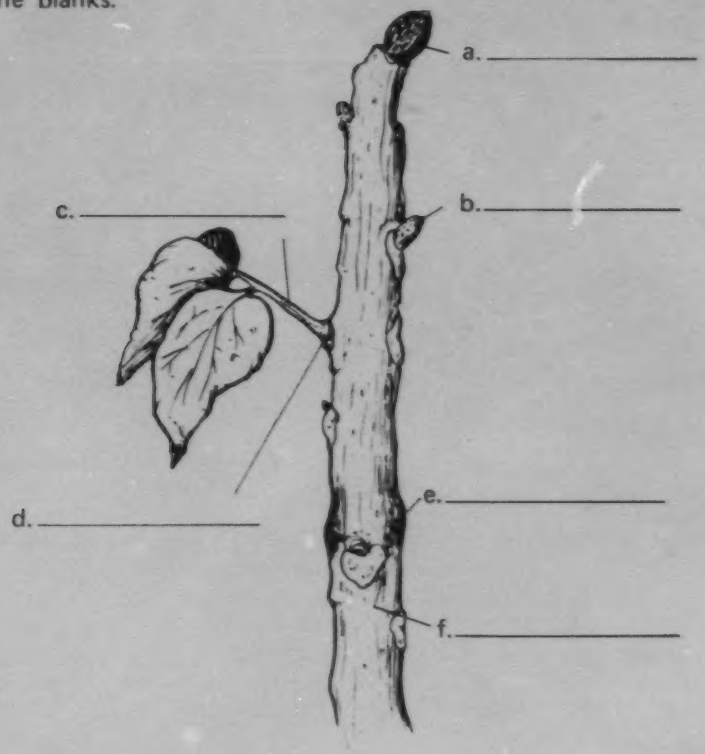
_____a. Reproduction; stores food	1. Root
_____b. Absorbs water and minerals; stores food; anchors and supports plant	2. Stem
_____c. Manufactures food for the plant; transpiration (evaporation of water); serves as food storage	3. Leaf
_____d. Supports leaves; aids in manufacturing plant food from leaves; serves as food storage area	4. Bud or flower

4. Identify the two main types of root systems as illustrated below by writing the correct names in the blanks.



a._____ b._____

5. Label the parts of the stem in the illustration below by writing the correct names in the blanks.



6. List the stages of seed germination.

a.

b.

c.

d.

e.

7. Select from the list requirements for good seed germination by placing an "X" in the blanks.

_____a. Proper temperature

_____b. Sufficient moisture

_____c. Ample supply of oxygen

_____d. Present in southern Oklahoma

_____e. Two inches deep in soil

8. List three factors that cause poor seed germination.

a.

b.

c.

9. Select from the list below substances that must be present before photosynthesis will occur by placing an "X" in the blanks.

_____a. Light

_____b. Soil

_____c. Water

_____d. Rocks

_____e. Favorable temperature

_____f. Organic matter

_____g. Living cells containing chlorophyll

_____h. Occurs only in southern United States

_____i. Carbon dioxide (CO_2)

10. List the steps in the process of manufacturing of plant food with photosynthesis.

a.

b.

c.

d.

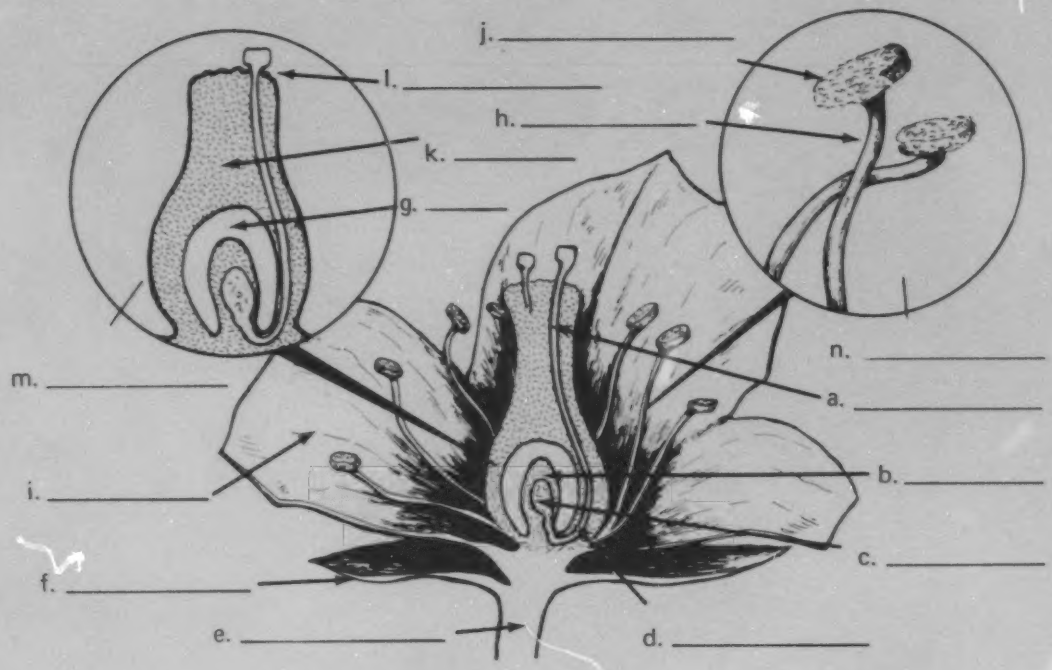
11. Describe three ways a plant absorbs nutrients.

a. Diffusion

b. Osmosis

c. Nonroot feeding

12. Label the parts of the flower below by writing the correct names in the blanks.



13. Select from the list below methods of pollination by placing an "X" in the blanks.

_____a. Gravity

_____b. Wind

_____c. Insects

_____d. Man

_____e. Animals

_____f. Birds

14. List three methods of vegetative reproduction.

a.

b.

c.

PLANT GROWTH AND REPRODUCTION
UNIT III

ANSWERS TO TEST

1.

a. 7	h. 13	o. 18	v. 1
b. 14	i. 20	p. 3	
c. 21	j. 5	q. 10	
d. 8	k. 12	r. 17	
e. 15	l. 19	s. 2	
f. 22	m. 4	t. 9	
g. 6	n. 11	u. 16	

2. a. Root
   b. Stem
   c. Leaf
   d. Bud or flower

3. a. 4
   b. 1
   c. 3
   d. 2

4. a. Taproot
   b. Fibrous

5. a. Terminal bud
   b. Auxiliary bud
   c. Petiole
   d. Abcission layer
   e. Node
   f. Internode

6. a. Absorption of water and oxygen into the seed

   b. Seed swells and seed coat ruptures

   c. Primary (temporary) root goes down

   d. First internode goes up

   e. New leaves form and food production starts

7. a, b, c

8. Any three of the following:

   a. Mechanical injury (cracked grain)

   b. Disease

   c. Storage conditions

   d. Old seed

   e. Temperature too cold

   f. Hard seed coat (hard-seeded legumes)

   g. Drying out of soil

   h. Planting too deep

   i. Chemical damage (fertilizer)

   j. Immature seed

9. a, c, e, g, i

10. a. CO_2 taken in by leaves

    b. H_2O taken in by roots

    c. $CO_2 + H_2O \xrightarrow[\text{chlorophyll}]{\text{light}} \underset{\text{(sugar)}}{C_6H_{12}O_6} + O_2$

    d. Plants convert sugar to starch or reverse the process as needed to build protein, fats, or energy

11. Description should include:

    a. Diffusion--Movement of gases or liquid from an area of high concentration to an area of lower concentration

b. Osmosis--Movement of a substance from the place of greater concentration through a thin, semipermeable membrane to the place of lesser concentration

c. Nonroot feeding (leaf feeding)--Nutrients and water entering plant through leaves and stems

12. a. Pollen tube

b. Ovule

c. Embryo sac

d. Micropyle

e. Receptacle

f. Calyx

g. Ovary

h. Filament

i. Coralla

j. Anther

k. Style

l. Stigma

m. Pistil

n. Stamen

13. a, b, c, d, e, f

14. Any three of the following:

a. Tubes

b. Root

c. Stolon

d. Stem

e. Rhizomes

SEED SELECTION
UNIT IV

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to select good quality seed. He should also be able to list and classify weeds as prohibited or restricted noxious. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with seed selection to the correct definitions.
2. Select from a list factors to look for in selecting high quality seed.
3. Classify noxious weeds as prohibited or restricted.
4. Select from a list procedures to follow in handling or storing seed.
5. List two means of securing good seed.
6. List the six requirements that must be printed on all Oklahoma seed labels.
7. Identify ten noxious weeds.
8. Select quality seed.

SEED SELECTION
UNIT IV

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Conduct field trip to allow students to collect weed seeds and other crop seeds.

(NOTE: Samples of weed and crop seeds can be secured from the Agronomy Club at Oklahoma State University.)

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take additional notes.

C. Complete assignment sheets and turn in to instructor.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Prohibited Noxious Weeds
2. TM 2--Restricted Noxious Weeds
3. TM 3--Seed Label Requirements

D. Assignment sheets

1. Assignment Sheet #1--Identifying and Classifying Noxious Weeds

2. Assignment Sheet #2--Selecting Quality Seed

E. Test

F. Answers to test

II. References:

A. *OCIA Certified Seed Standards and Rules.* Stillwater: Oklahoma Crop Improvement Association, Oklahoma State University. (Free publication)

B. *The Yearbook of Agriculture: Seeds.* Washington, D.C.: The United States Department of Agriculture.

C. Hughes, Harold D., Darrel S. Metcalf, and Iver J. Johnson. *Crop Production.* New York: The Macmillan Company, 1967.

D. *Instructional Materials for Vocational Agriculture I.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

E. Hughes, Harold D., Darrel S. Metcalf, and Iver J. Johnson. *Crop Production Principles and Practices.* New York: The Macmillan Company, 1967.

F. *Rules and Regulations for FFA Interscholastic Meet.* Stillwater, Oklahoma: College of Agriculture, Oklahoma State University, 1974.

SEED SELECTION
UNIT IV

INFORMATION SHEET

I. Terms and definitions

A. Seed--Plant embryo and stored food surrounded by a seed coat

B. Breeder seed--Seed used by the breeder to maintain the strain or variety

(NOTE: This seed is the source of foundation seed.)

C. Foundation seed--Second link in the certified seed chain; produced from breeder seed and handled in such a way as to ensure genetic identity and varietal purity

D. Registered seed--Seed produced from foundation seed and used to produce certified seed

(NOTE: This is the third link in the certification chain.)

E. Certified seed--Seed which is guaranteed by a state agency to meet certain minimum requirements in respect to purity, germination, and other characteristics including freedom from weed seed, disease, spores, and insect eggs

F. Pure seed--Percentage of seed that will produce plants true to variety and type

G. Inert matter--Percentage by weight of chaff, broken seeds, stems, and soil particles

H. Hard seed--Seed which remains hard at the end of the prescribed test because it has not absorbed water due to an impermeable seed coat

I. Pure line seed--Amount of seed when planted that will produce plants

II. Factors to look for in selecting high quality seed

A. Size and plumpness

B. Color of seed coat

C. Free of disease

D. Free of broken seed

INFORMATION SHEET

E. Free of noxious weeds

F. Free of insects

III. Noxious weeds

A. Prohibited noxious (Transparency 1)

1. Field bindweed*
2. Yellow nutsedge*
3. Canada thistle
4. Hoary cress
5. Russian knapp

B. Restricted noxious (Transparency 2)

1. Bracted plantain*
2. Buckhorn*
3. Cheat*
4. Dock*
5. Dodder*
6. Johnson grass*
7. Purple nightshade*
8. Wild onion*
9. Corn cockle
10. Giant foxtail
11. Quack grass
12. Sheep or red sorrel
13. Darnel

(NOTE: *These are used in FFA crops identification.)

INFORMATION SHEET

IV. Procedures to follow in handling and storing seed

A. Purchase foundation or registered seed for planting

B. Select clean seed, if home grown

C. Control weeds

D. Prevent seed from mixing

E. Store in a cool, dry place

F. Treat seed for insects and disease

G. Protect from rodents

H. Test seed for germination

I. Inspect seed during storage

J. Make sure moisture is favorable for storage before harvesting home grown seed

V. Means of securing good seed

A. Home grown

B. Reliable seed dealers

VI. Requirements printed on seed labels (Transparency 3)

A. Kind, variety, origin

B. Lot number

C. Percentage of purity

D. Percentage of inert matter

E. Percentage of weed seed

F. Percentage of other agricultural seed

Prohibited Noxious Weeds

Field Bindweed

Yellow Nutsedge

Canada Thistle

Hoary Cress

Russian Knapp

00197

Restricted Noxious Weeds

Bracted Plantain

Wild Onion

Buckhorn

Purple Nightshade

Dodder

Corn Cockle

Dock

Darnel

Cheat

Giant Foxtail

Quack Grass

Johnson Grass

Sheep or Red Sorrel

TM 2

001993

Seed Label Requirements

KIND VARIETY LOT NO.

ORIGIN

PURITY % WEED SEED % INERT MATTER %

OTHER CROP SEED % GERM. DATE

GERMINATION % HARD SEED %

NAME AND NO. NOXIOUS WEEDS PER OZ.

VENDOR

ADDRESS

00499

TM 3

SEED SELECTION
UNIT IV

ASSIGNMENT SHEET #1--IDENTIFYING AND CLASSIFYING NOXIOUS WEEDS

Collect ten noxious weeds found in your local community and bring to class. List the weeds below and classify them as either prohibited or restricted noxious weeds.

Name	Prohibited	Restricted
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

SEED SELECTION
UNIT IV

ASSIGNMENT SHEET #2--SELECTING QUALITY SEED

Collect ten samples of seeds in your local community and bring to class. Put all the seeds that are of one kind and variety together, identify each by number, and select the one that is of the highest quality.

List below the number that you think is the highest quality. When completed, check with the instructor for evaluation.

Sample Number	Name, Kind, or Variety	Owner
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

SEED SELECTION
UNIT IV

TEST

1. Match the terms on the right to the correct definition.

_____a. Plant embryo and stored food surrounded by a seed coat	1. Seed
_____b. Seed which is guaranteed by a state agency to meet certain minimum requirements in respect to purity, germination, and other characteristics including freedom from weed seed, disease, spores, and insect eggs	2. Breeder seed
_____c. Amount of seed when planted that will produce plants	3. Foundation seed
_____d. Seed used by the breeder to maintain the strain or variety	4. Registered seed
_____e. Percentage of seed that will produce plants true to variety and type	5. Certified seed
_____f. Second link in the certified seed chain; produced from breeder seed and handled in such a way as to ensure genetic identity and varietal purity	6. Pure seed
_____g. Seed produced from foundation seed and used to produce certified seed	7. Inert matter
_____h. Percentage by weight of chaff, broken seeds, stems, and soil particles	8. Hard seed
_____i. Seed which remains hard at the end of the prescribed test because it has absorbed water due to an impermeable seed coat	9. Pure line seed

2. Select from the list below factors to look for in selecting high quality seed by placing an "X" in the blanks.

_____a. Size and plumpness

_____b. Texture

_____c. Color of seed coat

_____d. Number of stones

_____e. Free of disease

_____f. Free of insects

_____g. Free of rats

_____h. Free of broken seed

3. Classify the following weeds as prohibited or restricted noxious by listing each under the proper heading: field bindweed, wild onion, cheat, yellow nutsedge, dock, dodder, Johnson grass, bracted plantain, hoary cress, Canada thistle.

Restricted	Prohibited
a.	a.
b.	b.
c.	c.
d.	d.
e.	
f.	

4. Select from the list below procedures to follow in handling or storing seed by placing an "X" in the blanks.

_____a. Use combine run seed

_____b. Purchase foundation or registered seed for planting

_____c. Control weeds

_____d. Have the elevator man to select seeds

_____e. Prevent seed from mixing

_____f. Use straight run seed from an elevator

_____g. Store in a cool, dry place

_____h. Test seed for germination

_____i. Never look at seed in a closed bin

5. List two means of securing good seed.

a.

b.

6. List the six requirements that must be printed on all Oklahoma seed labels.

   a.

   b.

   c.

   d.

   e.

   f.

7. Identify ten noxious weeds.

8. Select quality seed.

   (NOTE: If these have not been accomplished prior to test, ask the instructor when the above activities should be completed.)

SEED SELECTION
UNIT IV

ANSWERS TO TEST

1. a. 1 d. 2 g. 4
   b. 5 e. 6 h. 7
   c. 9 f. 3 i. 8
2. a, c, e, f, h
3. Restricted
   a. Wild onion
   b. Cheat
   c. Dock
   d. Dodder
   e. Johnson grass
   f. Bracted plantain

   Prohibited
   a. Field bindweed
   b. Yellow nutsedge
   c. Hoary cress
   d. Canada thistle
4. b, c, e, g, h
5. a. Home grown
   b. Reliable seed dealers
6. a. Kind, variety, origin
   b. Lot number
   c. Percentage of purity
   d. Percentage of inert matter
   e. Percentage of weed seed
   f. Percentage of other agricultural seed
7. Evaluated to the satisfaction of the instructor.
8. Evaluated to the satisfaction of the instructor.

LAND PREPARATION
UNIT V

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to match terms and definitions and select from a list reasons for tillage. He should also be able to identify equipment used in land preparation, determine when to plow, and discuss advantages of turning under crop residue. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with land preparation to the correct definitions.
2. Select from a list reasons for tillage.
3. List five characteristics of a good seedbed.
4. Select from a list factors that determine the time to plow.
5. List advantages of fall plowing and spring plowing.
6. Discuss advantages of turning under crop residue.
7. Describe the purposes of summer fallowing.
8. List reasons for stubble mulching.
9. Identify equipment used in land preparation.

LAND PREPARATION
UNIT V

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Discuss terminal and specific objectives.

D. Discuss information sheet.

E. Take class on field trip to an implement dealer to see types of tillage implements used in the community.

F. Have students collect pictures of tillage implements and bring to class.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Collect pictures of tillage implements used in your community.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Test

D. Answers to test

II. References:

A. Morten, John H., and Warren H. Leonard. *Principles of Field Crop Production.* New York: The Macmillan Company, 1968.

B. Hughes, Harold D. and Edwin R. Henson. *Crop Production*. New York: The Macmillan Company, 1967.

C. *Instructional Materials for Vocational Agriculture I*. College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

LAND PREPARATION
UNIT V

INFORMATION SHEET

I. Terms and definitions

A. Tillage--Type of cultivation used to maintain a seedbed and control weeds

B. Crop residue--Part of the crop that is left on top of the soil after harvesting

(NOTE: The kind and amount of residue will determine type of tillage to use.)

C. Stubble mulching--Tillage beneath the stubble without covering all the residue

D. Erosion--Removal of soil by wind and/or water

E. Land preparation--Complete process of preparing the soil after a crop is removed until a new crop is planted

F. Summer fallow--Cropland left idle, usually for one growing season, while the soil is being cultivated to control weeds and conserve moisture

G. Moldboard--Implement that breaks loose or shears off furrow slice and inverts the soil

H. One-way--Disk plow used in loose soil and hard, dry soil where a moldboard cannot be used; leaves a rough surface and does not cover all the residue

(NOTE: You can only turn one direction with it.)

I. Sweep--Used for stubble mulching; leaves surface rough with all residue on top

(NOTE: This is used primarily in the dryer climates.)

J. Chisel--Implement used to break up dry, hard soils for water penetration

K. Disk--Tillage implement for loose soils; used in final preparation of the seedbed

II. Reasons for tillage

A. Eliminate weeds

B. Increase soil's chemical and biological conditions for seed germination

C. Loosen soil so that roots of seedlings can penetrate

INFORMATION SHEET

D. Aerate the soil

E. Destroy insects

F. Prepare land surface for irrigation

G. Aid in erosion control

H. Conserve moisture

III. Characteristics of a good seedbed

A. Clean

B. Firm

C. Mellow

D. Free of disease

E. Free of insects

F. Free of trash and weeds

(NOTE: Seedbed preparation is determined by the crop to be planted.)

IV. Factors that determine time to plow

A. Type of crop

B. Weed problem

C. Erosion

D. Moisture

V. Advantages of fall and spring plowing

A. Fall

1. Increases time for crop residue to decay

2. Reduces tillage load

3. Improves chance of forming a firm seedbed

4. Allows time for soil to crumble from freezing and thawing

5. Aids in insect control

INFORMATION SHEET

B. Spring

1. Aids in controlling erosion on sandy soil

2. Adds organic matter

VI. Advantages of turning under crop residue

A. Adds organic matter to the soil

B. Increases food elements

C. Increases microorganism action

D. Conserves moisture

VII. Purposes of summer fallowing

A. Conserve moisture

B. Control weeds

VIII. Reasons for stubble mulching

A. Reduce erosion (wind)

B. Increase moisture intake

C. Increase crop yield

(NOTE: Crop yield may decrease the first year or two before it starts to increase.)

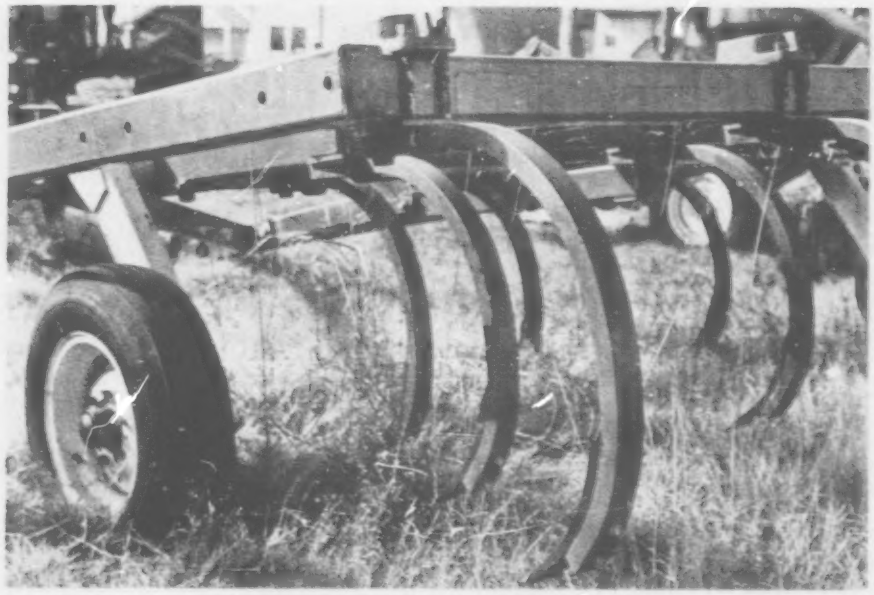
INFORMATION SHEET

IX. Land preparation equipment

A. One-way plow

B. Subsurface tiller

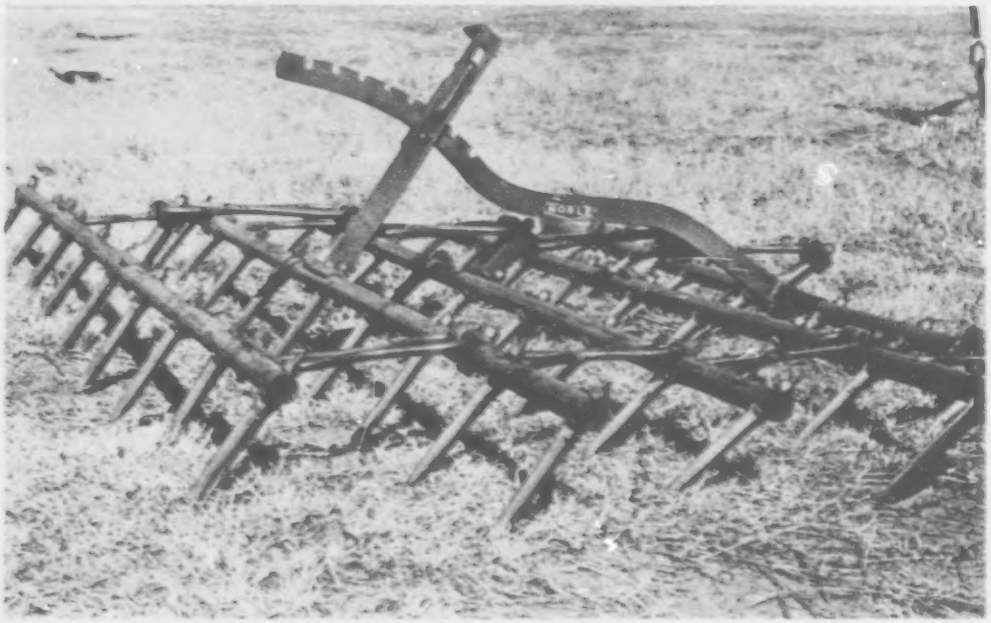
C. Chisel plow



INFORMATION SHEET

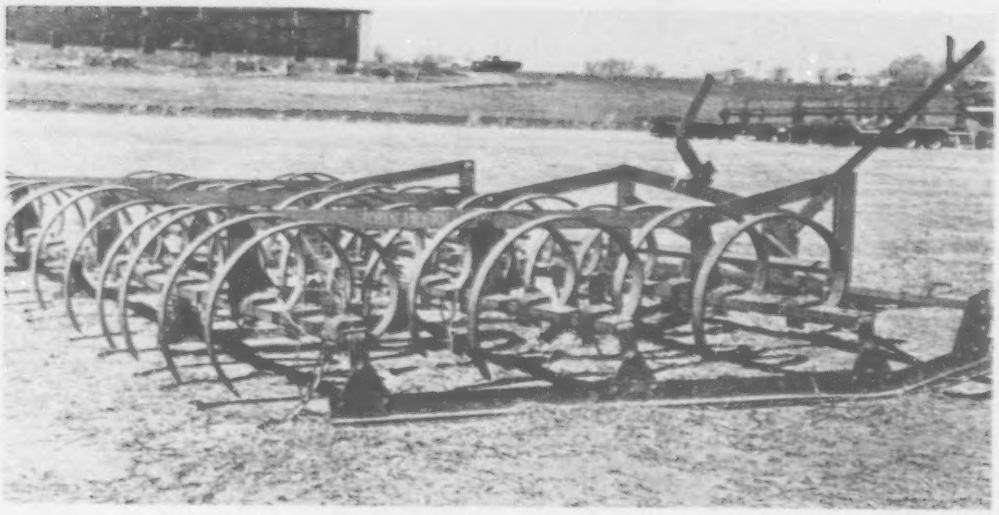
D. Semimounted moldboard plow

E. Spike-tooth harrow



INFORMATION SHEET

F. Spring-tooth harrow



G. Tandem disk

LAND PREPARATION
UNIT V

TEST

1. Match terms on the right to the correct definition or description.

_____a. Complete process of preparing the soil after a crop is removed until a new crop is planted	1. Crop residue
_____b. Type of cultivation used to maintain a seedbed and control weeds	2. Stubble mulching
_____c. Tillage implement for loose soils; used in final preparation of the seedbed	3. Erosion
_____d. Implement used to break up dry, hard soils for water penetration	4. Tillage
_____e. Removal of soil by wind and/or water	5. Land preparation
_____f. Tillage beneath the stubble without covering all the residue	6. Summer fallow
_____g. Used for stubble mulching; leaves surface rough with all residue on top	7. Moldboard
_____h. Disk plow used in loose soils and on dry, hard soils where a moldboard cannot be used; leaves a rough surface and does not cover all the residue	8. One-way
_____i. Cropland left idle, usually for one growing season, while the soil is being cultivated to control weeds and conserve moisture	9. Sweep
_____j. Part of the crop that is left on top of the soil after harvesting	10. Chisel
_____k. Implement that breaks loose or shears off furrow slice and inverts the soil	11. Disk

2. Select from the list below reasons for tillage by placing an "X" in the blanks.

_____a. Eliminate weeds

_____b. Aerate the soil

_____c. Destroy insects

_____d. Aid in erosion control

_____e. Conserve moisture

3. List five characteristics of a good seedbed.

a.

b.

c.

d.

e.

4. Select from the list below factors that determine the time to plow by placing an "X" in the blanks.

_____a. Type of crop

_____b. Time of day

_____c. Month

_____d. Weed problem

_____e. Erosion

_____f. Moisture

5. List advantages of fall plowing and spring plowing.

a. Fall

1)

2)

3)

4)

b. Spring

1)

2)

6. Discuss the advantages of turning under crop residue.

7. Describe two purposes of summer fallowing.

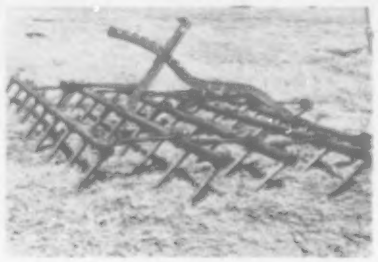
8. List reasons for stubble mulching.

   a.

   b.

   c.

9. Identify the following equipment used in land preparation by writing the correct name in the blank.



a. _____ b. _____

c. _____ d. _____

LAND PREPARATION
UNIT V

ANSWERS TO TEST

1. a. 5
   b. 4
   c. 11
   d. 10
   e. 3
   f. 2
   g. 9
   h. 8
   i. 6
   j. 1
   k. 7
2. a, b, c, d, e
3. Any five of the following:
   a. Clean
   b. Firm
   c. Mellow
   d. Free of disease
   e. Free of insects
   f. Free of trash and weeds
4. a, d, e, f
5. a. Fall (any four of the following)
      1) Increases time for crop residue to decay
      2) Reduces tillage load
      3) Improves chance of forming a firm seedbed
      4) Allows time for soil to crumble from freezing and thawing
      5) Aids in insect control
   b. Spring
      1) Aids in controlling erosion on sandy soil

2) Adds organic matter

6. Discussion should include:

   a. Adds organic matter to the soil

   b. Increases food elements

   c. Increases microorganism action

   d. Conserves moisture

7. Description should include:

   a. Conserve moisture

   b. Control weeds

8. a. Reduce erosion (wind)

   b. Increase moisture intake

   c. Increase crop yield

9. a. Chisel plow

   b. Spike-tooth harrow

   c. Semimounted moldboard plow

   d. Tandem disk

CHEMICAL WEED CONTROL
UNIT VI

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to list ways weeds are spread and describe damages they cause to a farming program. He should also be able to calculate the proper amount of herbicide to use and the application rate. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with chemical weed control to the correct definitions.
2. List four safety precautions to observe when using herbicides.
3. Select from a list three ways weeds are propagated from area to area.
4. List four means by which seeds are spread.
5. Describe three ways weeds can hinder a farming program.
6. Match the methods of chemical application to the correct descriptions.
7. Discuss in writing three classifications of herbicides.
8. List four forms in which herbicides may be purchased.
9. Select from a list factors that determine herbicide application rate.
10. List three factors that determine when to apply herbicides.
11. Identify three types of spray nozzles.
12. Calculate application rates of herbicides.

CHEMICAL WEED CONTROL
UNIT VI

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objectives.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Collect chemical labels for class use.

G. Take students on a field trip to a chemical supplier.

H. Teach unit on chemical safety before teaching this unit.

I. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take notes.

C. Complete the activities outlined on the assignment sheet.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Application of Herbicides

2. TM 2--Application of Herbicides (Continued)

3. TM 3--Nozzle Types

4. TM 4--Sprayer Calibration Nomograph

D. Assignment Sheet #1--Calculating Application Rates of Herbicides

E. Answers to assignment sheet

F. Test

G. Answers to test

II. References:

A. *Weed Control: Cultural and Chemical.* Columbus, Ohio: Department of Agricultural Education, Ohio State University.

B. *Instructional Materials for Vocational Agriculture II.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

C. McVickar, Malcolm H., and John S. McVickar. *Approved Practices in Pasture Management.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

D. Wilson, Harold K., and A. Chester Richer. *Producing Farm Crops.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

E. Phagan, C.V. "Selecting and Using Field Crop Spray Equipment." Circular E-762. Stillwater: Extension Service, Oklahoma State University. (Free publication.)

F. "Precision Calibration of a Sprayer." *OSU Extension Facts.* Stillwater: Extension Service, Oklahoma State University.

G. Bowers, Wendell. *Nomograph on Calibration of Sprayer.* Stillwater: Agriculture Engineering Department, Oklahoma State University.

CHEMICAL WEED CONTROL
UNIT VI

INFORMATION SHEET

I. Terms and definitions

A. Weed--Plant growing where it is not wanted

B. Herbicide--Chemical developed to control weeds without harming crops

C. Label--Legal identification attached to containers of any commercially sold agricultural chemical giving a summary of its properties, uses, and precautions

D. Foliar herbicide--Herbicide applied to the crucial parts (leaves) of a plant

E. Soil herbicide--Herbicide applied directly to the soil

F. Selective herbicide--Herbicide which kills or damages certain types of plants

G. Nonselective herbicide--Herbicide used to remove all or most of the plants within a given area

(NOTE: It may also be referred to as a soil sterilant.)

H. Penetration--Movement of the herbicide retained on the surface

I. Translocation--Movement of a herbicide from the point of penetration to the other parts of the plant

J. Retention--Amount of herbicide that remains on the foilage after application

K. Perennial--Plant that normally lives more than two years

L. Hazardous chemical--Chemical harmful to man, animals, and plants

II. Safety precautions to observe when using herbicides

A. Follow recommendations

B. Use according to label instructions

C. Use only on recommended crops

D. Wear protective clothing

E. Guard against injury to other plants

(NOTE: Instructor may add other precautions as needed.)

INFORMATION SHEET

III. Ways weeds are propagated

A. Seeds

B. Roots

C. Stems

IV. Means by which seeds are spread

A. Wind

B. Water

C. Animals

D. Man

E. Equipment

V. Ways weeds hinder a farming program

A. Reduces crop yields

B. Reduces quality of crop

C. Increases production cost

D. Increases labor and equipment costs

E. Lowers land value

F. Harbors disease and insects

G. Damages livestock and people

(NOTE: Most of the ways mentioned are affected through the competition with crops and by removing soil nutrients, moisture, and carbon dioxide.)

VI. Methods of chemical application (Transparency 1)

A. Broadcast--Covers the entire area or field at a uniform rate

B. Row or band--Places chemical directly over the rows

C. Spot--Places chemical in limited areas infested with weeds

D. Directed spray--Places spray directly on a certain part of the plant

INFORMATION SHEET

VII. Herbicide classification (Transparency 2)

A. Preplant--Applying herbicide before the crop is planted

B. Preemergence--Applying chemical before the crop or weeds emerge

C. Postemergence--Applying chemical after the crop or weeds emerge

VIII. Forms in which herbicides may be purchased

A. Emulsions

B. Wettable powder

C. Granules

D. Soluble liquid and solid

E. Foam

IX. Factors that determine application rate

A. Texture of soil

B. Organic matter in soil

C. Size and condition of crop

D. Size and condition of weeds

E. Available moisture

X. Factors that determine when to apply herbicides

A. Climate

1. Temperature

2. Wind

3. Moisture

B. Stage of plant growth

C. Condition of plant

XI. Types of spray nozzles (Transparency 3)

A. Hollow cone

B. Regular flat fan

C. Flooding flat

INFORMATION SHEET

XII. Calculation of problems

A. Calculation of nozzle calibration (Transparency 4)

(NOTE: Use nomograph to determine missing factor.)

Example: Sprayer ground speed is 4 mph, nozzle spacing is 20 inches, and desired application rate is 20 gal/acre. Solution: Using a straightedge, draw a line from 4 mph on SPEED LINE through 20 inches on NOZZLE SPACING LINE and locate point where line intercepts PIVOT LINE. Now draw a line through intercept point on PIVOT LINE and through 20 gal/acre on APPLICATION RATE LINE and locate point where line intercepts CALIBRATION CHECK LINE. Read either 35 oz/min or 0.27 gal/min. Select nozzle size to give 0.27 gal/min at desired pressure. Adjust pressure regulator to give a flow rate of 35 oz/min from each nozzle.

B. Mixing herbicides

1. Product label--Static amount of active ingredients

   a. Percent by weight

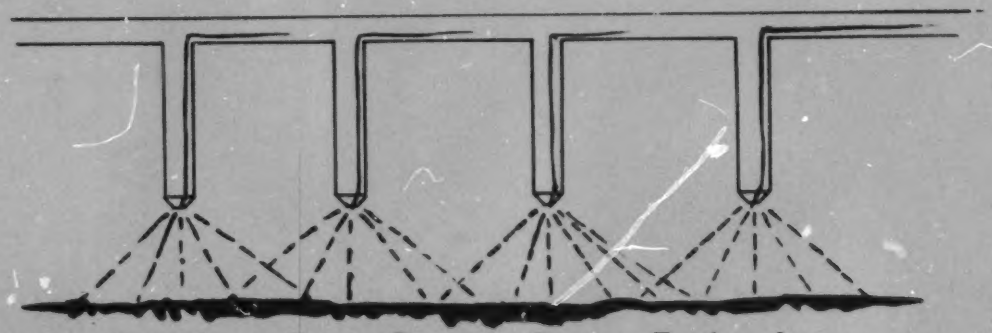
   b. Pounds equivalent per gallon of liquid

2. Formula calculations

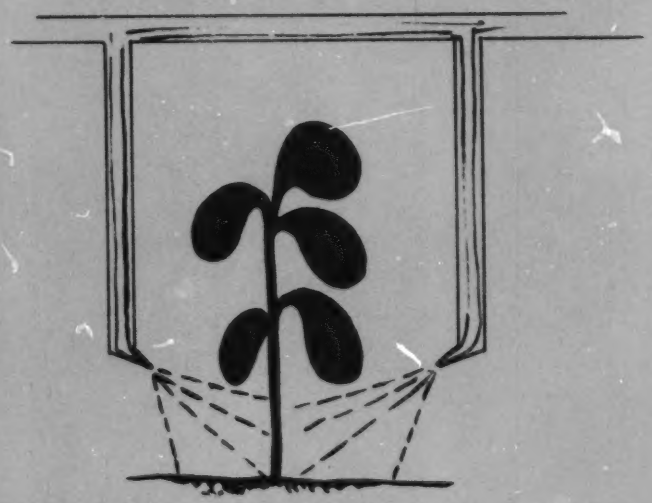
   a. $\frac{\text{Pounds per acre by 100\%}}{\text{Strength of mixture}}$ = Pounds of product required per acre

   b. $\frac{\text{4 pounds per acre active ingredient}}{\text{4 pounds per gallon product}}$ = One gallon of product required per acre

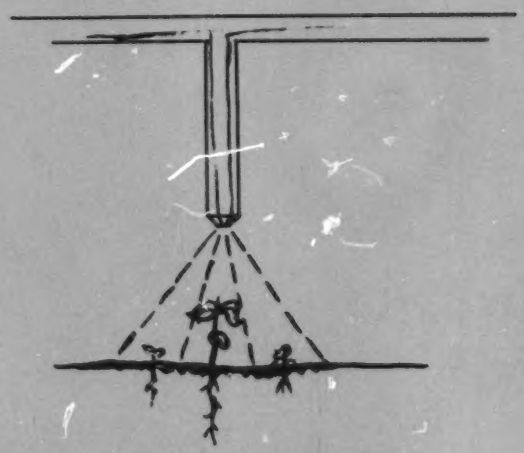
Application of Herbicides



Broadcast Spray Pattern Covers Entire Area



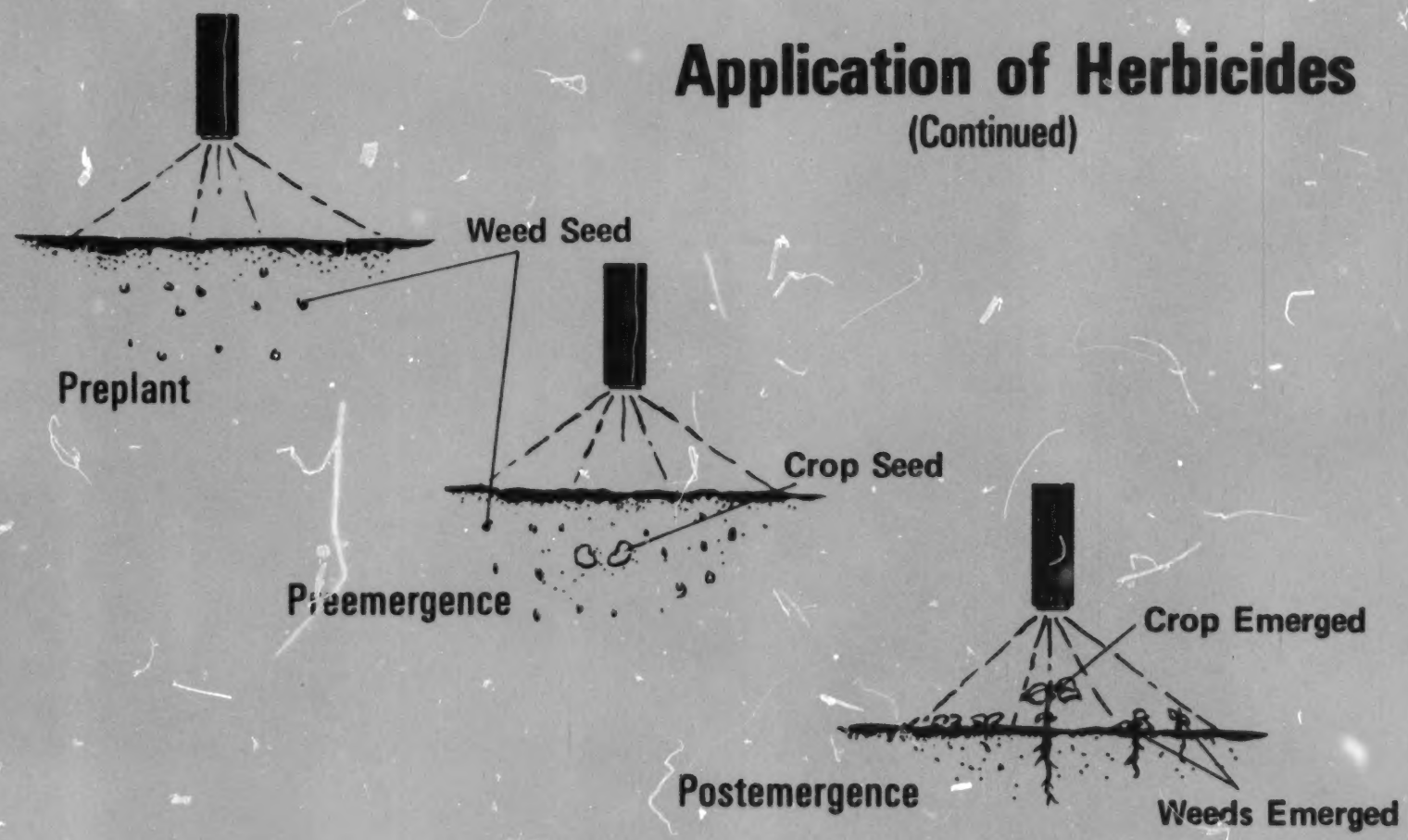
Directed Spray Beneath Plant Leaves



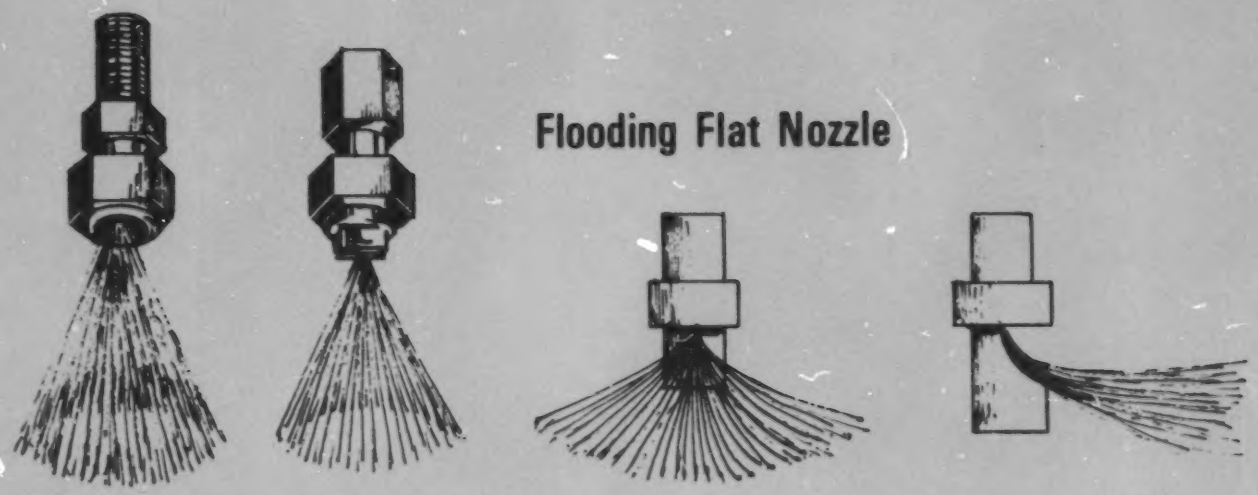
Band Spray Pattern
Over the Row

00226

Application of Herbicides
(Continued)

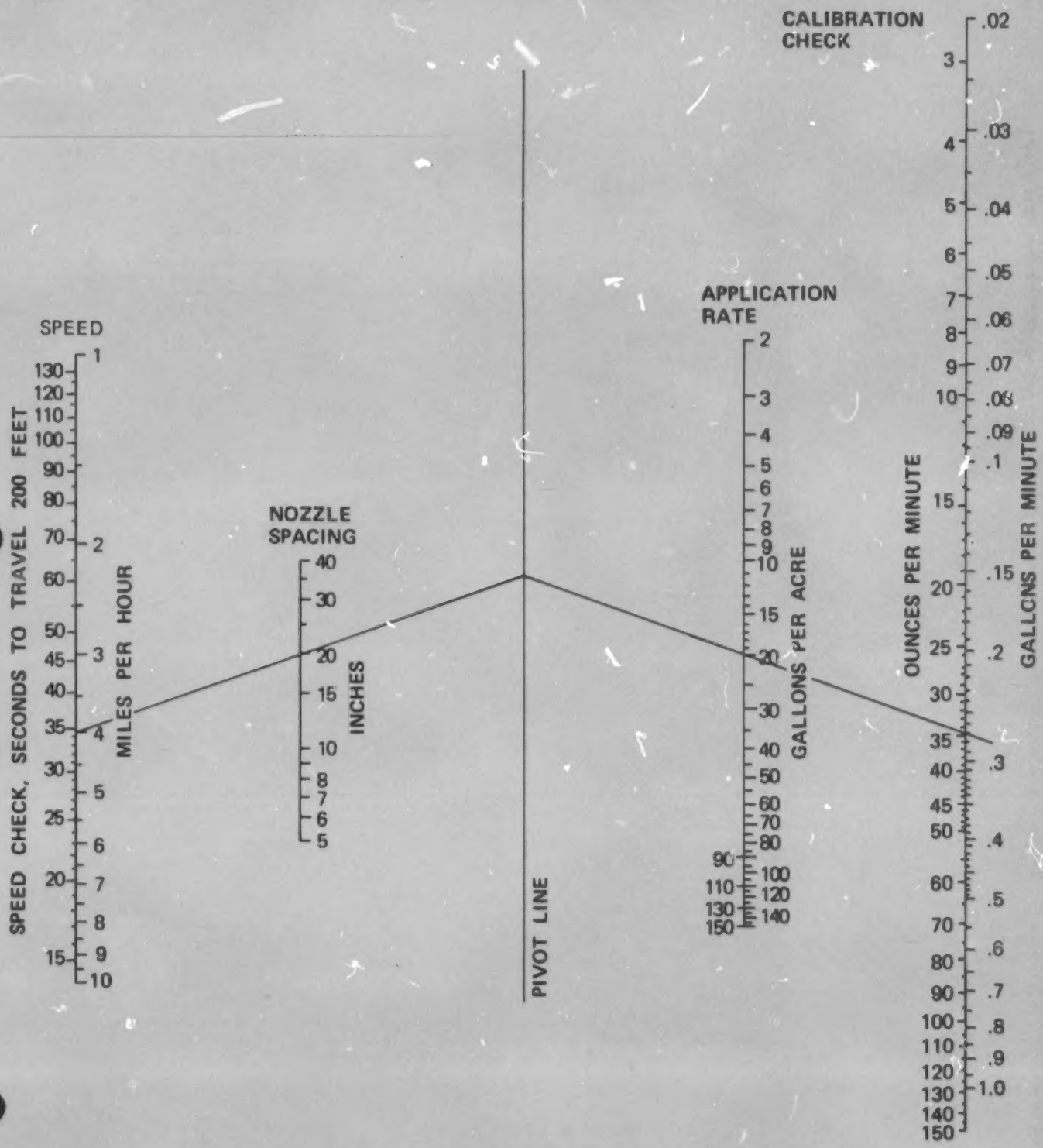


Nozzle Types



00228

Sprayer Calibration Nomograph



CHEMICAL WEED CONTROL
UNIT VI

ASSIGNMENT SHEET #1--CALCULATING APPLICATION RATES OF HERBICIDES

Work the following problems and show your work.

1. A manufacturer recommends four pounds of a 50 percent wettable powder for spraying corn. How many pounds of this product would be required to spray a required acre?

2. A manufacturer recommends four pounds of an 80 percent wettable powder for spraying corn. How many pounds of this product would be required to spray a required acre?

3. Use nomograph on Transparency 4 and calculate the following problems:

   a. A broadcast sprayer has a 20 inch nozzle spacing. A check of the nozzles shows each one puts out 28 ounces per minute. How fast would you have to drive to apply 15 gallons per acre?

ASSIGNMENT SHEET #1

b. Rows are 40 inches apart. You want to spray a 14 inch band at five miles per hour and with an equivalent broadcast rate of 25 gallons per acre. How many ounces per minute would be applied?

c. You want to spray a broadcast rate of 25 gallons per acre at a speed of 3.5 miles per hour. The nozzles are spaced 20 inches apart on the boom. What should be the flow rate for each nozzle?

CHEMICAL WEED CONTROL
UNIT VI

ANSWERS TO ASSIGNMENT SHEET #1

1. 8 pounds of the 50% wettable powder required per acre
2. 5 pounds of the 80% wettable powder required per acre
3. a. 4.3 miles per hour

   b. 38 ounces per minute per nozzle

   c. .3 gallons per minute or 38.5 ounces per minute

CHEMICAL WEED CONTROL
UNIT VI

TEST

1. Match the terms on the right to the correct definition or description.

_____a.	Legal identification attached to containers of any commercially sold agricultural chemical giving a summary of its properties, uses, and precautions	1. Weed
_____b.	Herbicide used to remove all or most of the plants within a given area	2. Herbicide
_____c.	Plant that normally lives more than two years	3. Label
_____d.	Chemical developed to control weeds without harming crops	4. Foliar herbicide
_____e.	Herbicide which kills or damages certain types of plants	5. Soil herbicide
_____f.	Amount of herbicide that remains on the foilage after application	6. Selective herbicide
_____g.	Plant growing where it is not wanted	7. Nonselective herbicide
_____h.	Herbicide applied directly to the soil	8. Penetration
_____i.	Movement of a herbicide from the point of penetration to the other parts of the plant	9. Translocation
_____j.	Herbicide applied to the crucial parts (leaves) of a plant	10. Retention
_____k.	Movement of the herbicide retained on the surface	11. Perennial
_____l.	Chemical harmful to man, animals, and plants	12. Hazardous chemical

2. List four safety precautions to observe when using herbicides.

a.

b.

c.

d.

3. Select from the list three ways weeds are propagated from area to area by placing an "X" in the blanks.

_____a. Birds

_____b. Seeds

_____c. Animals

_____d. Roots

_____e. Stems

4. List four means by which seeds are spread.

a.

b.

c.

d.

5. Describe three ways weeds can hinder a farming program.

6. Match the methods of chemical application on the right to the correct description.

_____a. Places chemical in limited areas infested with weeds	1. Broadcast
_____b. Covers the entire area or field at a uniform rate	2. Row or band
_____c. Places spray directly on a certain part of the plant	3. Spot
_____d. Places chemical directly over the rows	4. Directed spray

7. Discuss in writing three classifications of herbicides.

8. List four forms in which herbicides may be purchased.

a.

b.

c.

d.

9. Select from the list below factors that determine herbicide application rate by placing an "X" in the blanks.

_____a. Texture of soil

_____b. Time of day

_____c. Month

_____d. Organic matter in soil

_____e. Size and condition of crop

_____f. Size and condition of weeds

_____g. Available moisture

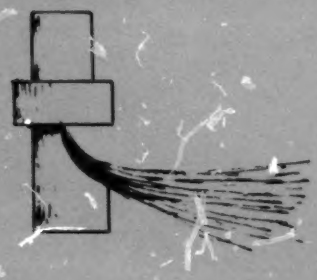
10. List three factors that determine when to apply herbicides.

a.

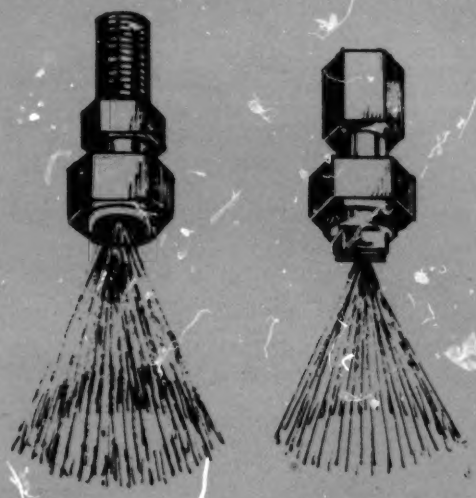
b.

c.

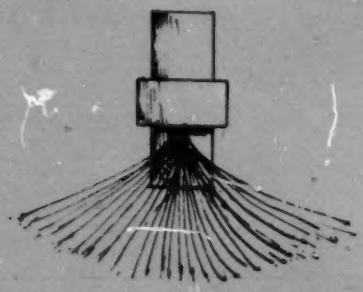
11. Identify the following types of spray nozzles by writing the correct name in the blank provided.



a. _____



c. _____



b. _____

12. Calculate application rates of herbicides.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

CHEMICAL WEED CONTROL
UNIT VI

ANSWERS TO TEST

1.

a.	3	g.	1
b.	7	h.	5
c.	11	i.	9
d.	2	j.	4
e.	6	k.	8
f.	10	l.	12

2. Any four of the following:
   a. Follow recommendations
   b. Use according to label instructions
   c. Use only on recommended crops
   d. Wear protective clothing
   e. Guard against injury to other plants
   f. Others as added by instructor
3. b, d, e
4. Any four of the following:
   a. Wind
   b. Water
   c. Animals
   d. Man
   e. Equipment
5. Description should include any three of the following:
   a. Reduces crop yields
   b. Reduces quality of crop

c. Increases production cost

d. Increases labor and equipment costs

e. Lowers land value

f. Harbors disease and insects

g. Damages livestock and people

6. a. 3

b. 1

c. 4

d. 2

7. Discussion should include:

a. Preplant--Applying herbicide before the crop is planted

b. Preemergence--Applying chemical before the crop or weeds emerge

c. Postemergence--Applying chemical after the crop and weeds emerge

8. Any four of the following:

a. Emulsions

b. Wettable powder

c. Granules

d. Soluble liquid and solid

e. Foam

9. a, d, e, f, g

10. a. Climate

b. Stage of plant growth

c. Condition of plant

11. a. Regular flat fan nozzle

b. Flooding flat nozzle

c. Hollow cone nozzle

12. Evaluated to the satisfaction of the instructor.

PLANT INSECT CONTROL
UNIT VII

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to match plant damage and insects that cause the damage. He should be able to classify insects according to the way they feed and whether they are harmful or beneficial. He should be able to discuss the importance of insect control as it relates to the farming program. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with plant insects to the correct definitions.
2. List five practices used in controlling insects.
3. Match insects to the plant damage caused by each.
4. Classify insects according to the way they feed on plants.
5. Classify insects as either harmful or beneficial.
6. Discuss the importance of economics in relationship to plant insect control.
7. Label a drawing showing life cycle of an insect.
8. Match types of insecticides to the correct descriptions.
9. Describe natural and artificial methods of insect control.
10. Name the insect when given description, damage, and crops attacked.
11. Collect and identify common insects, telling if they are harmful or beneficial.

PLANT INSECT CONTROL
UNIT VII

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Take students on field trip to collect insects.

G. Assist students in identifying insects.

H. Give test.

II. Students:

A. Read objectives.

B. Study information sheet and take notes.

C. Collect insects and complete assignment sheet.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Insect Damage
2. TM 2--Beneficial Insects
3. TM 3--Life Cycle of Insects
4. TM 4--Life Cycle of Insects (Continued)

D. Assignment Sheet #1--Collecting and Identifying Insects

E. Test

F. Answers to test

II. References:

A. *Instructional Materials for Vocational Agriculture II.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

B. Hughes, Harold D., and Edwin R. Henson. *Crop Production.* New York: The Macmillan Company.

C. Young, Jerry H. "Alfalfa Insect Control." *OSU Extension Facts.* Stillwater: Oklahoma State University.

D. Kunz, Sidney E. "Identifying Oklahoma Cotton Pests." *OSU Extension Facts.* Stillwater: Oklahoma State University.

E. "Worm Pests of Oklahoma Cotton." *OSU Extension Facts.* Stillwater: Oklahoma State University.

PLANT INSECT CONTROL
UNIT VII

INFORMATION SHEET

I. Terms and definitions

A. Insect--Small, boneless animal whose body is divided into three sections and has six legs

B. Nymph--Young insect which looks like a small adult insect

C. Life cycle--Stages in the life development of insects

D. Insecticide--Chemical or biological material used to kill or control insects

E. Pesticide--Chemical or biological material used to control pests

(NOTE: An insecticide may be classed as a pesticide.)

II. Practices used in insect control

A. Tillage, pasturing, and timely planting

B. Rotation and selection of crops

C. Planting dates

D. Destruction of trash

E. Quarantine areas

F. Biological control

G. Poison baits

H. Chemical control

III. Plant damage and insects causing damage (Transparency 1)

A. Cotton boll weevil

B. Corn earworm

C. Southwestern corn borer

INFORMATION SHEET

IV. Insect classification according to feeding habits

A. Chewing

(NOTE: These insects bite off, chew, and swallow plant parts. This results in ragged, deformed, or stunted plants that may be more susceptible to disease and may die due to excessive damage.)

1. Armyworm
2. Grasshopper
3. Cutworm
4. Potato beetle
5. Blister beetle
6. Cotton bollworm
7. Southwestern corn borer

B. Sucking

(NOTE: These insects pierce the outer layer of the plant tissue with their "coke straw" beak and feed on the plant sap.)

1. Aphid
2. Leafhopper
3. Chinch bug
4. Thrips
5. Scale
6. Hessian fly
7. Greenbug

C. Internal feeding

(NOTE: This group enters the plant and feeds from within.)

1. European corn borer
2. Cotton boll weevil
3. Corn earworm

INFORMATION SHEET

D. Subterranean

(NOTE: This group includes both chewing and sucking insects which enter the plant below the soil surface.)

1. Corn rootworm

2. Wireworm

V. Beneficial and harmful insects

A. Beneficial insects (Transparency 2)

1. Ground beetle--Feeds on insects

2. Lady beetle--Feeds on aphids

3. Lacewing larva--Feeds on aphids

4. Big-eyed bug--Feeds on moth eggs (lepidoptera)

5. Pirate bug--Feeds on moth eggs (lepidoptera)

6. Damsel beetle--Feeds on caterpillar and small, soft-bodied insects

7. Assassin bug (wheelbug)--Feeds on caterpillars and soft-bodied insects

8. Spider--Feeds on caterpillar and soft-bodied insects

B. Harmful insects

1. Armyworm--Eats foliage; strips fields

2. Chinch bug--Sucks juice from plant

3. Southwestern corn borer--Eats leaves and then bores into stalk

4. Corn earworm--Cuts through husks; eats and tunnels through kernels

5. Lesser cornstalk bores--Bores into nuts and pegs of peanuts and roots of other crops

6. Corn rootworm (southern)--Bores into stem and feeds on roots

7. Alfalfa webworm--Webs tops of plants together; devours leaves

8. Cotton boll weevil--Feeds inside squares of balls

INFORMATION SHEET

9. Cutworm--Cuts plant stems off near soil surface

10. Grasshopper--Eats foliage; strips plants

11. Greenbug--Sucks sap, weakens and kills plants

12. Cotton fleahopper--Feeds on tender parts of the plant

13. Thrips--Feeds on young plants

14. Granary weevil--Feeds on grain in storage

VI. Economic importance of insect control

A. Over $705 million spent annually on insect control

B. Over $2 billion annual loss

C. Five to ten percent of total crop damaged

D. Over $100 million spent yearly on cotton alone

VII. Life cycles of insects (Transparencies 3 and 4)

A. Four-stage group

1. Egg

2. Larva

3. Pupa

4. Adult

B. Three-stage group

1. Egg

2. Nymph

3. Adult

VIII. Description of types of insecticides

A. Fumigant poison--Enters the insect's body through the tracheal system in the form of a gas

B. Stomach poison--Eaten and digested by the insect

INFORMATION SHEET

C. Contact poison--Absorbed through the insect's skin or body wall and acts upon the pest's nervous system

IX. Methods of insect control

A. Natural

1. Climate

2. Temperature

3. Rainfall

4. Sunshine

5. Predatory insects

6. Disease

B. Artificial

1. Mechanical and physical

a. Insect traps

b. Male sterile insects

Example: Screwworm fly

c. Colored lights

2. Cultural

a. Rotation of crops

b. Tillage

c. Planting date

d. Drainage

e. Improved plant varieties

3. Chemical

INFORMATION SHEET

X. Insect identification by description, damage, crops attacked, and control

Insect	Adult Description	Larva Description	Damage	Control	Crops Attacked
Armyworm	Moth, brownish gray, 1 1/2-inch wing spread	Caterpillar, greenish, 3 stripes on side; 1 1/2 inches long	Eats foliage; strips field	Dylox, Toxaphene, Endrin, Sevin	Corn, grasses
Armyworm (fall)	Moth, gray, white, or dull-colored, 1 1/4-inch wing spread	Caterpillar, green to black with inverted white Y on head; 1 1/2 inches long	Eats foliage; often completely destroys crop	Toxaphene, Endrin, Sevin, Parathion, Diazinon	Corn, sorghum, grasses
Chinch bug	Soft-bodied, black with white wings with spots, 1/5-inch long	Nymph, brick red; wings reduced to small pads until adult stage is reached	Sucks juices from plants	Malathion, Sevin, Parathion	Corn, small grains, grasses
South-western corn borer	Moth, white to smoky yellow, 1 1/4-inch wing spread	Yellowish caterpillar with dark spots; 1 inch long	Eats leaves, then bores into stalk	Crop rotation, Diazinon EC and Granules, Furadan	Corn, sorghum, Johnson grass
Corn earworm	Moth, yellowish-green or gray, 1 1/2-inch wing spread	Caterpillar, varies from green to almost black	Cuts through husks; eats and tunnels through kernels	Sevin, Azodrin, Toxaphene, Parathion Methomyl	Corn, cotton, grain sorghum
Cotton boll weevil	Snout beetle, yellowish to almost black, 1/4-inch long	White grub, wrinkled, curved brown head; 1/2-inch long	Grubs feed inside squares of bolls	Toxaphene, Parathion, Guthion, Sevin, Malathion ULV (ultra low volume)	Cotton

Insect	Adult Description	Larva Description	Damage	Control	Crops Attacked
Lesser corn-stalk borer	Moth, brown, 3/4-inch wing span; active at dusk and early evening	Bluish green, 3/4-inch long, nine narrow brown lines on each segment, brown to black head	Bores into nuts and pegs of pea-nuts and roots of other crops	Diazinon, Parathion Dyfonate Dasanit Azodrin	Peanuts, corn, grain sorghum
Corn root-worm (southern)	Beetle, yellowish green, 12 black spots on wing corners, 1 1/4 inches long	Slender yellowish white worm, brown head, 6 small legs; about 1/2-inch long	Bores into stem and feeds on roots	Late planting; EPN or Sevin, Parathion	Corn, small grains, grasses, cucumbers
Alfalfa webworm	Buff to brown moth, 3/4-inch wing spread	Greenish brown, 3 black dots in each side; 3/4-inch long	Webs tops of plants together; devours leaves	Mow early; Sevin, Parathion, Dylox, Toxaphene	Alfalfa, vege-tables, clover, soybeans
Cutworm	Moth, varies in color with species, wing spread 1 1/2 inches	Caterpillar, pale brownish to grayish white worm	Cuts plants off near ground	Rotate crops; Endrin, Toxaphene, Parathion, Sevin, Dylox	Corn, grains, grasses, cotton, clover
Grasshopper	Varies according to species	Nymph	Eats foliage; strips plants	Cultivation to destroy eggs, Sevin, Toxaphene, Malathion	Corn, small grains, alfalfa

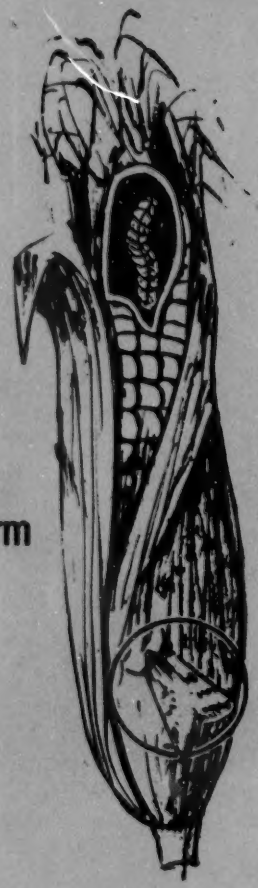
00248

Insect	Adult Description	Larva Description	Damage	Control	Crops Attacked
Granary weevil	Chestnut brown beetle, 1/16-inch long		Feeds on grains in storage	Use standard grain fumigants available on market	Cereal grains
Greenbug	Yellowish green aphid	Nymph	Sucks sap, weakening and killing plants	Malathion, Parathion, Systox, Cygon, Di-Syston	Small grains, corn
Hessian fly	Mosquito-like fly, dark-bodied, 1/10-inch long	Small red maggot, 1/16-inch long	Sucks juices from plants	Delay seeding until flies have emerged	Wheat, barley, rye, and some grasses
Cotton flea-hopper	Pale green, 1/8-inch long, wings are marked with small dark spots and black marks near the end	Nymph	Feeds on tender part of plants	Cygon, Dylox, Sevin, Toxaphene, Parathion, Bidrin	Cotton
Thrips	Small, slender insect, yellowish with two pair of narrow wings with long hairs		Feeds on young plants	Methomyl, Bidrin, Sevin, Toxaphene, Parathion, Di-Syston (Granules), Phorate (Granules), Thimet (Granules)	Cotton, peanuts

INFORMATION SHEET

00249

Insect Damage



Corn
Earworm

Southwestern
Corn Borer

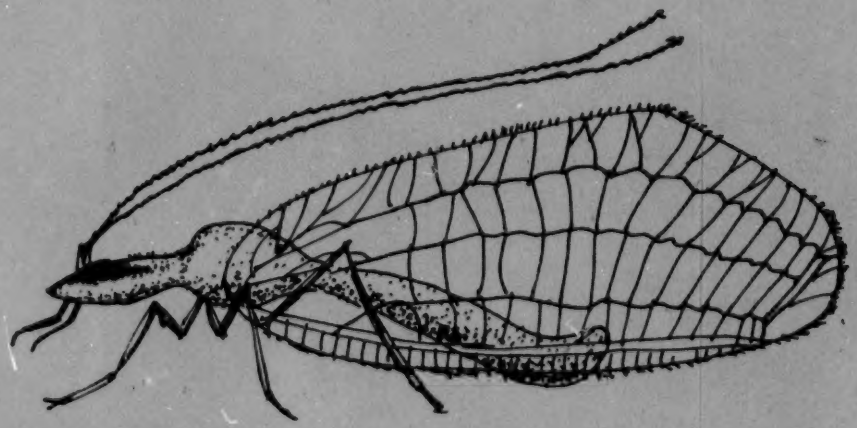
Boll Weevil

00250

Beneficial Insects

Lady Beetle

Ground Beetle



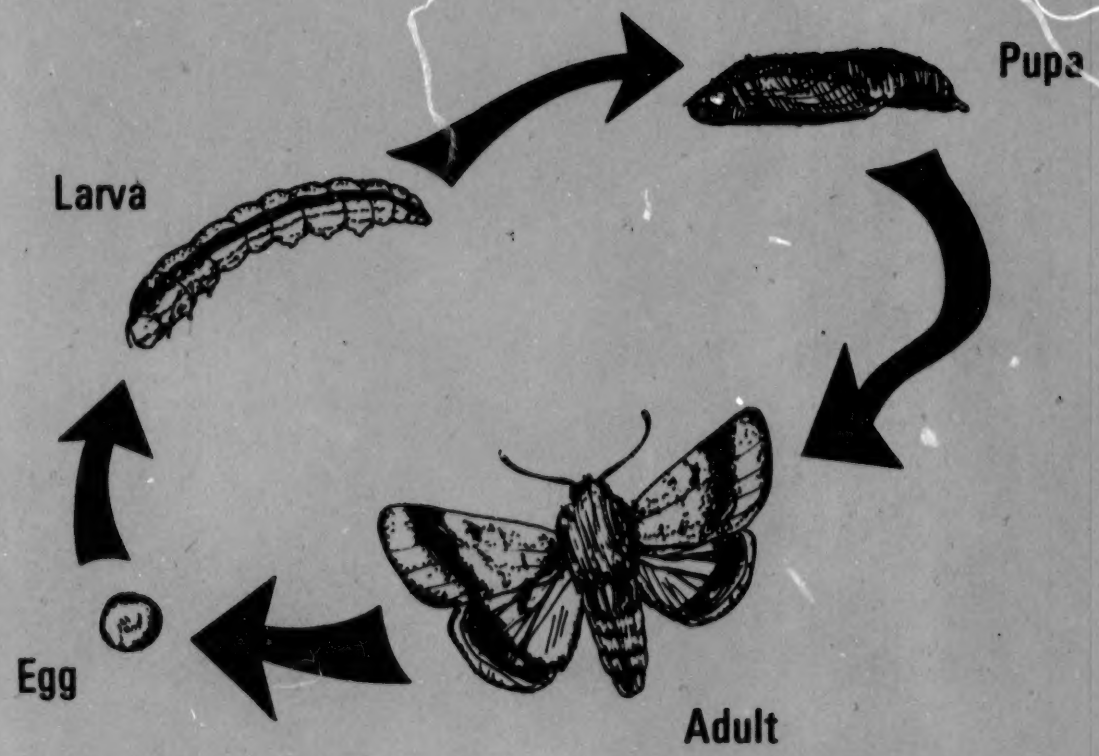
Lacewing

00251

TM 2

Ag II - 175-D

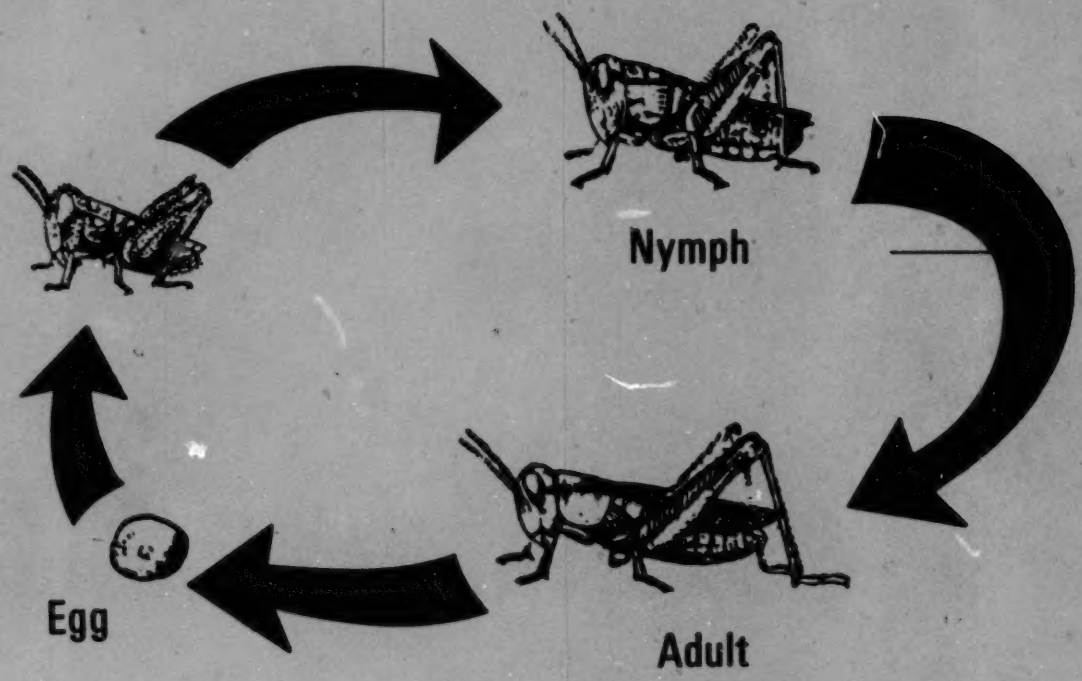
Life Cycle of Insects



00252

Life Cycle of Insects

(Continued)



PLANT INSECT CONTROL
UNIT VII

ASSIGNMENT SHEET #1--COLLECTING AND IDENTIFYING INSECTS

Survey your local community and collect five specimens of insects. List the insects on the chart below and indicate their methods of feeding and the crops they attack.

Insect	Method of Feeding		Crop Attacked	Harmful or Beneficial
	Sucking	Chewing		

PLANT INSECT CONTROL
UNIT VII

TEST

1. Match the terms on the right to the correct definition or description.

_____a. Stages in the life development of insects	1. Pesticide
_____b. Chemical or biological material used to control pests	2. Insecticide
_____c. Young insect which looks like a small adult insect	3. Life cycle
_____d. Chemical or biological material used to kill or control insects	4. Nymph
_____e. Small, boneless animal whose body is divided into three sections and has six legs	5. Insect

2. List five practices used in controlling insects.

a.

b.

c.

d.

e.

3. Match the insect on the right to the correct illustration showing the damage each does.

a.

b.

c.

1. Cotton boll weevil
2. Corn earworm
3. Southwestern corn borer

4. Classify the following insects according to the way they feed on plants by writing the name in the proper column.

Armyworm	Aphid	Cutworm
Grasshopper	Leafhopper	Chinch bug
European corn borer	Cotton boll weevil	Corn earworm
Wireworm	Corn rootworm	

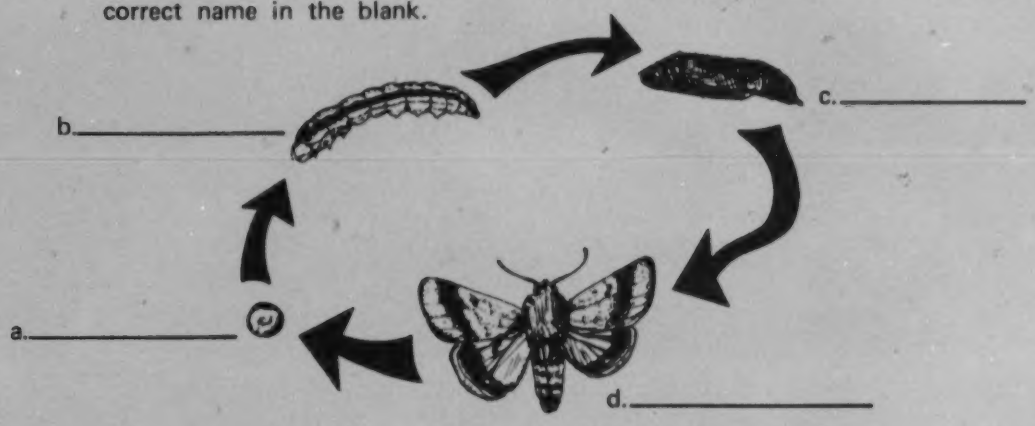
Subterranean	Internal feeding	Sucking	Chewing
1.	1.	1.	1.
2.	2.	2.	2.
	3.	3.	3.

5. Classify the following insects as harmful or beneficial by placing an "H" in front of the harmful and a "B" in front of the beneficial.

_____a. Chinch bug
_____b. Ground beetle
_____c. Southwestern corn borer
_____d. Lacewing larva
_____e. Pirate bug
_____f. Corn earworm
_____g. Cotton boll weevil
_____h. Cutworm
_____i. Spider
_____j. Grasshopper
_____k. Cotton fleahopper
_____l. Thrips

6. Discuss the importance of economics in relationship to plant insect control.

7. Label a drawing showing the four-stage life cycle of an insect by writing the correct name in the blank.



8. Match the type of insecticide on the right to the correct description.

_____a.	Absorbed through the insect's skin or body wall and acts upon the pest's nervous system	1.	Stomach poison
		2.	Fumigant poison
_____b.	Eaten and digested by the insect	3.	Contact poison
_____c.	Enters the insect's body through the tracheal system in the form of a gas		

9. Describe natural and artificial methods of insect control.

10. Complete the chart below by naming the insect when given the description, damage, and crops attacked.

Insect	Adult Description	Damage	Crops Attacked
a._____	Varies according to species	Eats foliage; strips plants	Corn, small grains, alfalfa
b._____	Moth, brownish gray, 1 1/2-inch wing spread	Eats foliage; strips field	Corn, grasses
c._____	Buff to brown moth, 3/4-inch wing spread	Webs tops of plants together; devours leaves	Alfalfa, vegetables, clover, soybeans
d._____	Moth, varies in color with species, wing spread 1 1/2 inches	Cuts plants off near ground	Corn, grains, grasses, cotton, clover
e._____	Yellowish green aphid	Sucks sap, weakening and killing plants	Small grains, corn

11. Collect and identify common insects, telling if they are harmful or beneficial.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

PLANT INSECT CONTROL
UNIT VII

ANSWERS TO TEST

1. a. 3
   b. 1
   c. 4
   d. 2
   e. 5

2. Any five of the following:
   a. Tillage, pasturing, and timely planting
   b. Rotation and selection of crops
   c. Planting dates
   d. Destruction of trash
   e. Quarantine areas
   f. Biological control
   g. Poison baits
   h. Chemical control

3. a. 2
   b. 1
   c. 3

4. Subterranean
   1. Corn rootworm
   2. Wireworm

   Internal Feeding
   1. European corn borer
   2. Cotton boll weevil
   3. Corn earworm

Sucking	Chewing
1. Aphid	1. Armyworm
2. Leafhopper	2. Cutworm
3. Chinch bug	3. Grasshopper

5.

a. H	g. H
b. B	h. H
c. H	i. B
d. B	j. H
e. B	k. H
f. H	l. H

6. Discussion should include:

   a. Over $705 million spent annually on insect control

   b. Over $2 billion annual loss

   c. Five to ten percent of total crop damaged

   d. Over $100 million spent yearly on cotton alone

7. a. Egg

   b. Larva

   c. Pupa

   d. Adult

8. a. 3

   b. 1

   c. 2

9. Description should include:

   a. Natural

      1. Climate

      2. Temperature

      3. Rainfall

4. Sunshine
5. Predatory insects
6. Disease

b. Artificial

1. Mechanical and physical
   a. Insect traps
   b. Male sterile insects
   c. Colored lights
2. Cultural
   a. Rotation of crops
   b. Tillage
   c. Planting date
   d. Drainage
   e. Improved plant varieties
3. Chemical

10. a. Grasshopper
    b. Armyworm
    c. Alfalpha webworm
    d. Cutworm
    e. Greenbug

11. Evaluated to satisfaction of instructor.

PLANT DISEASES
UNIT VIII

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to match terms and definitions, classify a disease, and label a drawing showing the life cycle of smut. He should also be able to collect and identify diseased plants. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with plant diseases to the correct definitions.
2. List four practices used to control plant diseases.
3. Match plant diseases to the damage caused by each.
4. Classify a disease as a fungus, bacteria, nematode, or virus.
5. Label a drawing showing the life cycle of smut.
6. Name the disease when given the crops affected, symptoms of the disease, and methods of control.
7. Identify diseases of plants collected in his community.

PLANT DISEASES
UNIT VIII

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Provide student with an opportunity or an incentive to collect plant diseases for identification.

G. Conduct a field trip.

H. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take notes.

C. Collect and identify plants showing disease damage.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Fungus Diseases

2. TM 2--Fungus Diseases (Continued)

3. TM 3--Bacterial Diseases

4. TM 4--Bacterial Diseases (Continued)

5. TM 5--Nematode Diseases

6. TM 6--Life Cycle of Smut

D. Assignment Sheet #1--Collect and Identify Plant Disease Damage

E. Test

F. Answers to test

II. References:

A. Wilson, Harold K., and A. Chester Richer. *Producing Farm Crops.* Danville, Illinois: The Interstate Printers and Publishers, Inc., 1967.

B. Belorit, Richard J., and Henry L. Ahlgren. *Crop Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967.

C. Hughes, Harold D., Edwin R. Henson, Darrel S. Metcalfe, and Iver J. Johnson. *Crop Production.* New York: The Macmillan Company, 1967.

D. *Compendium of Plant Diseases.* Philadelphia, Pennsylvania: Rohm and Hass Company.

E. Pearson, Lorentz. *Principles of Agronomy.* New York: Reinhold Publishing Corporation, 1967.

PLANT DISEASES
UNIT VIII

INFORMATION SHEET

I. Terms and definitions

A. Blight--Rapid discoloration and death of tissue over certain portions of the plant

B. Fungicide--Chemical or biological material used to kill or control fungi

C. Dwarfing--Failure of any part of the plant or the entire plant to develop properly

(NOTE: This is generally caused by nutritional deficiencies or a diseased condition.)

D. Host--Plant in which the disease lives and obtains food

E. Resistant--Inherited ability of a plant to retard growth of disease organisms

F. Fungus--Plant which lacks chlorophyll and obtains its food from other plant matter, dead or alive

G. Parasitic plant--Plant which cannot manufacture its own food but lives on other living plants

H. Ring spot--Yellowish ring on leaf with green tissue inside the ring

(NOTE: This is a virus disease that is common on sweet potato leaves.)

I. Scale--Crust-like, diseased lesion produced as a result of disease infection

J. Lesion--Abnormal change in parts of a plant due to disease or injury

K. Mosaic--Symptom of certain virus-incited diseases in which angular patterns of leaf coloration are apparent due to loss of chlorophyll along some of the veins

L. Virus--Microscopic protein-like substance capable of causing mosaic and other diseases

M. Conk--Dead area on a stem surrounded by living tissue

N. Wilt--Loss of freshness and drooping of leaves

O. Gall--Knot on the plant root produced by nematode; causes stunting of plant and severe reduction in yield

INFORMATION SHEET

II. Practices used to control plant diseases

A. Use of resistant varieties

B. Eradication of alternate host plants

C. Treatment of soil

D. Rotation of crops

E. Destruction of plant residue

F. Use of disease-free seed

III. Plant damage caused by diseases (Transparencies 1, 2, 3, 4, and 5)

A. Root rot

B. Blight

C. Smut

D. Stalk rot

E. Bacterial spot on tomato

F. Cotton leaf blight

G. Root gall

IV. Disease classifications

A. Fungus (Transparencies 1 and 2)

1. Seedling disease

2. Root rot

3. Rust

4. Scab

5. Smut

6. Ergot

B. Bacterial (Transparencies 3 and 4)

1. Bacterial blight

INFORMATION SHEET

2. Bacterial wilt

3. Leaf spot

4. Angular leaf spot

5. Cornstalk rot

6. Verticillium wilt

C. Nematode (Transparency 5)

1. Gall

2. Root-knot

D. Virus--Mosaic

V. Life cycle of smut (Transparency 6)

A. Seed planted; produces plant but seeds are destroyed by smut

B. Black head

C. Spores

D. Infected young

1. New heads

2. Young spikelets

E. Infectious seed

VI. Common plant diseases

(NOTE: Refer to chart on the following page.)

VI. Common plant diseases

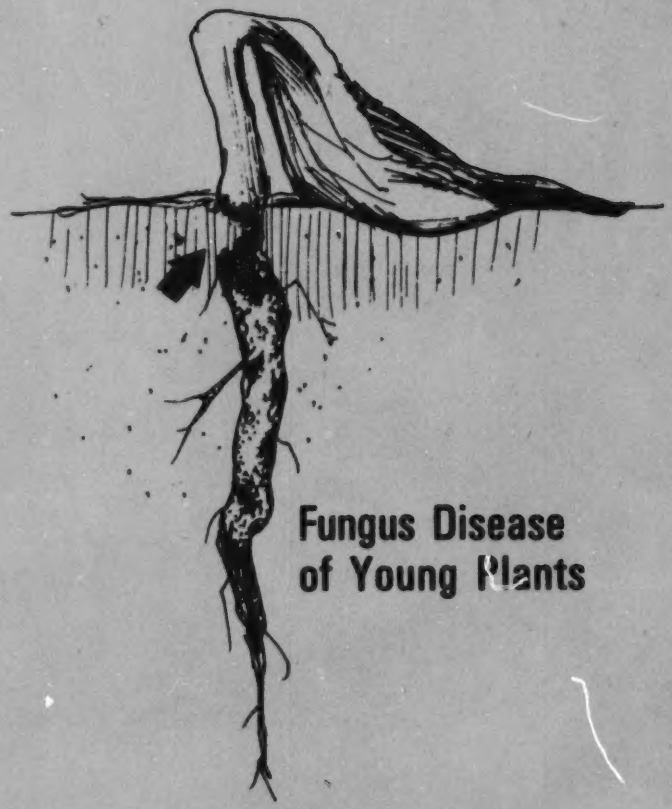
INFORMATION SHEET

Disease	Crops Affected	Symptoms	Control
Root rot	Cotton, alfalfa, peanuts, soybeans	Yellowing and bronzing of leaves; leaves become brown and dry	Rotation with other crops; use early-maturing varieties
Rusts black stem	Wheat, oats, barley, rye, grasses	Long brick-red pustules on stems and leaf sheaths; later turn black	Use resistant varieties and early-maturing varieties
Smut	Corn, sorghum, oats, barley, rye, wheat	Grayish white galls on any part of plant; filled with mass of black spores at maturity	Crop rotation; use resistant hybrids; treat seeds
Bacterial blight	Soybeans, sorghum, corn	Light to dark brown irregular spots without marginal halo on leaves, stems, and pods	Destroy crop residue; treat seeds; use resistant varieties
Bacterial wilt	Corn, alfalfa	Leaves wilt, turn yellow, then brown, and plant dies; stems show yellow discolored area	Rotation; use hardy and resistant varieties
Mosaic (virus)	Alfalfa, soybeans	Plants may dwarf; vein yellowing with dwarfing of stems	Good insect control
Ergot	Barley, wheat, rye	A blue black, hard mass replaces the kernels in the head of the plant	Rotation; sow disease-free seed
Nematode	Wheat, rye	Rolled or curled leaf; stem enlarged near the base, frequently bent	Use resistant varieties; plant disease-free seed
Verticillium wilt	Cotton	Discoloration of leaf margins; diseased leaves; bolls shed	Use wilt-resistant varieties

002657

Fungus Diseases

Root Rot



Fungus Disease
of Young Plants

Fungus Diseases
(Continued)

Blight

Smut

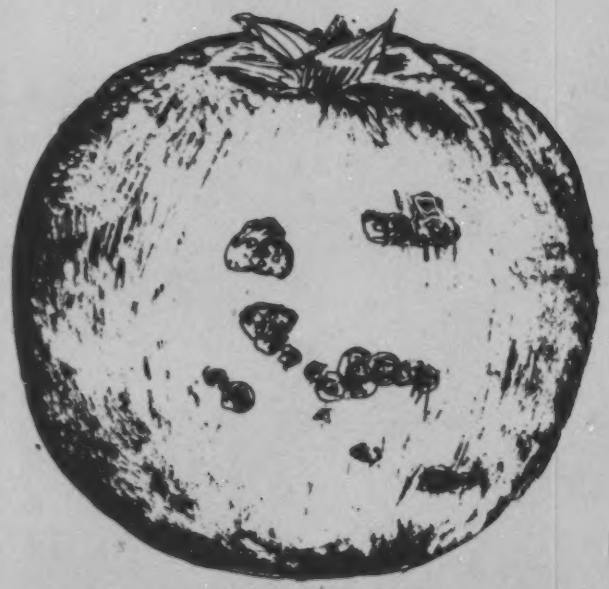
00749

Bacterial Diseases

Cotton Leaf Blight

00270

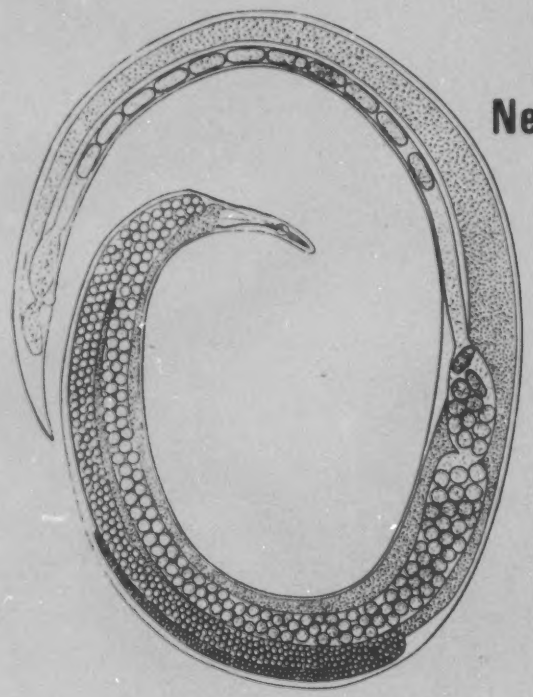
Bacterial Diseases
(Continued)



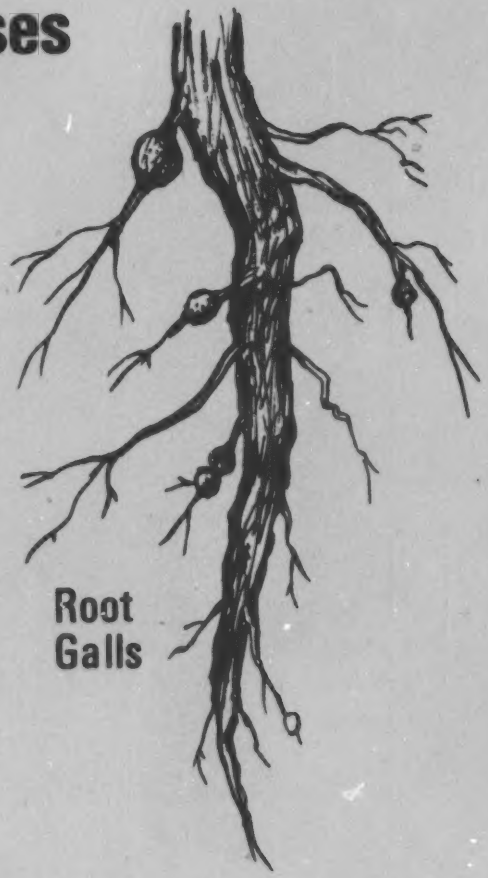
Bacterial Spot on Tomato

Stalk Rot

Nematode Diseases



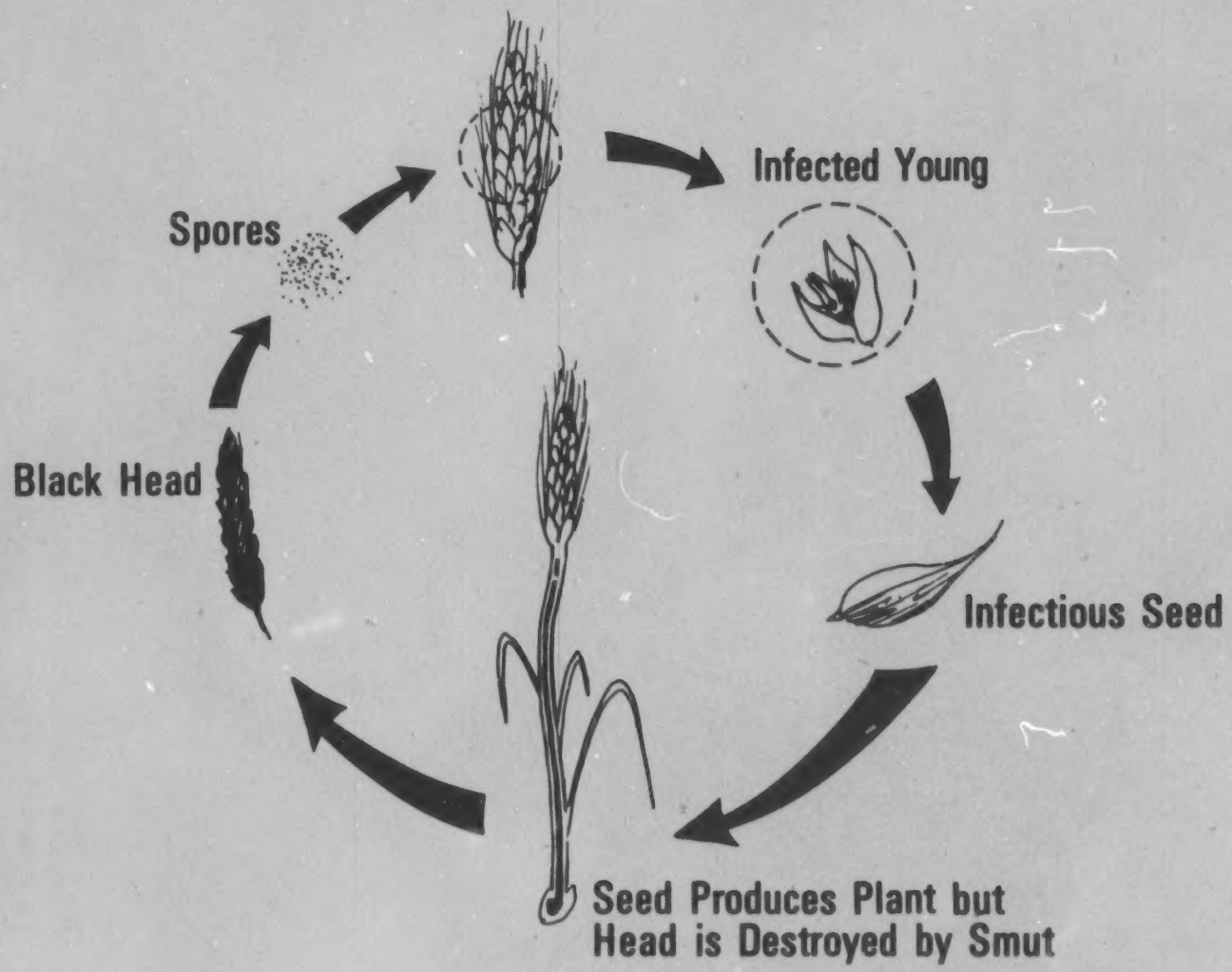
Nematode



Root Galls

002272

Life Cycle of Smut



00273

TM 6

Ag II - 209-D

PLANT DISEASES
UNIT VIII

ASSIGNMENT SHEET #1–COLLECT AND IDENTIFY PLANT DISEASE DAMAGE

Survey your local community and collect ten specimens of plants that are diseased. List each plant below and identify the disease.

	Plant	Disease
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

PLANT DISEASES
UNIT VIII

TEST

1. Match the terms on the right to the correct definition.

_____a. Dead area on a stem surrounded by living tissue

_____b. Yellowish ring on leaf with green tissue inside the ring

_____c. Plant in which the disease lives and obtains food

_____d. Symptom of certain virus-incited diseases in which angular patterns of leaf coloration are apparent due to loss of chlorophyll along some of the veins

_____e. Crust-like, diseased lesion produced as a result of disease infection

_____f. Inherited ability of a plant to retard growth of disease organisms

_____g. Loss of freshness and drooping of leaves

_____h. Abnormal change in parts of a plant due to disease or injury

_____i. Plant which lacks chlorophyll and obtains its food from other plant matter, dead or alive

_____j. Microscopic protein-like substance capable of causing mosaic and other diseases

_____k. Plant which cannot manufacture its own food but lives on other living plants

_____l. Failure of any part of the plant or the entire plant to develop properly

_____m. Chemical or biological material used to kill or control fungi

1. Blight
2. Fungicide
3. Dwarfing
4. Host
5. Resistant
6. Fungus
7. Parasitic plant
8. Ring spot
9. Scale
10. Lesion
11. Virus
12. Mosaic
13. Conk
14. Gall
15. Wilt

_____n. Rapid discoloration and death of tissue over certain portions of the plant

_____o. Knot on the plant coat produced by nematode; causes stunting of plant and severe reduction in yield

2. List four practices used to control plant diseases.

a.

b.

c.

d.

3. Match the plant diseases on the right to the plant damage caused by each.

1. Cotton leaf blight
2. Root galls
3. Stalk rot
4. Smut

a._____ b._____ c._____ d._____

4. Classify the following diseases by placing an "F" in front of the fungi, "B" in front of the bacteria, "N" in front of the nematodes, and "V" in front of the viruses.

_____a. Root rot

_____b. Leaf spot

_____c. Cornstalk rot

_____d. Verticillium wilt

_____e. Rust

_____f. Gall

_____g. Mosaic

_____h. Root-knot

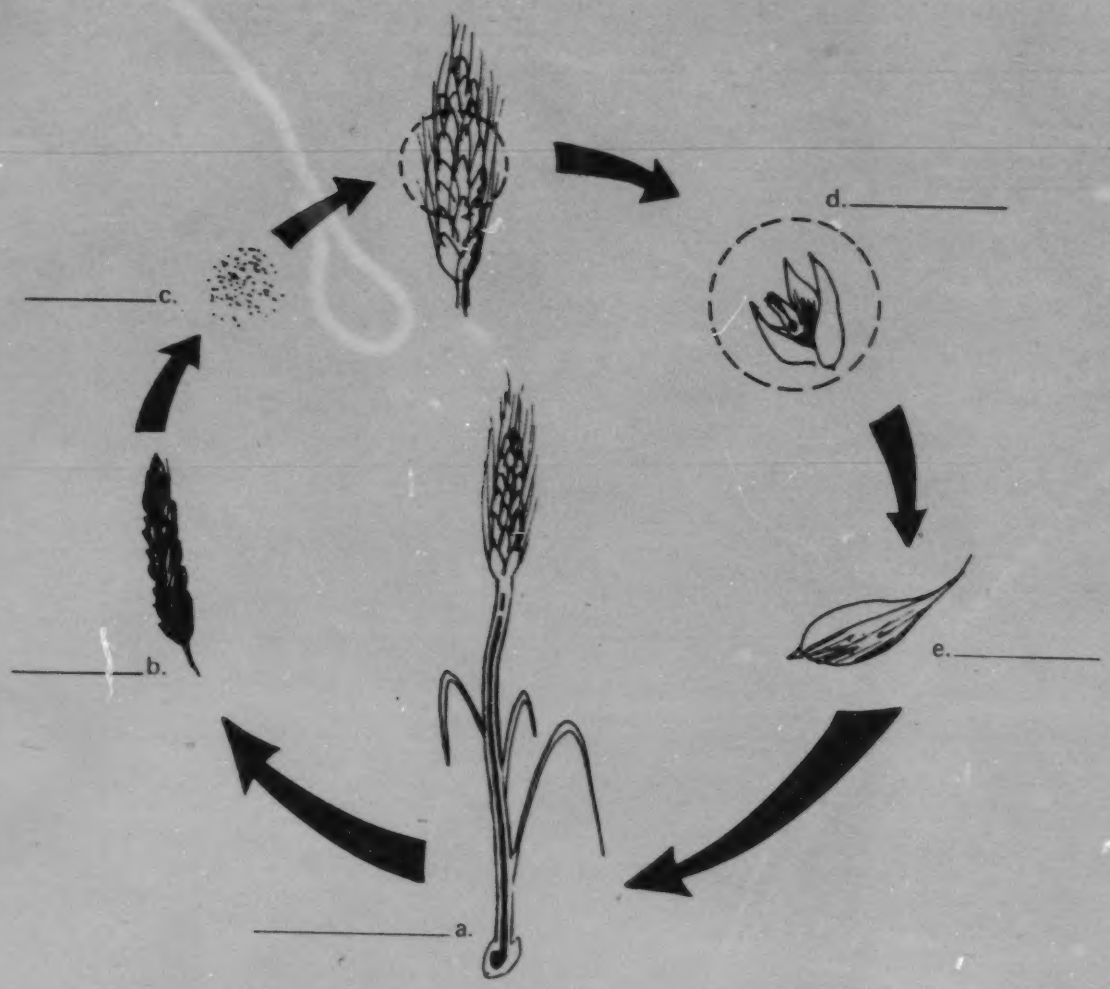
_____i. Smut

_____j. Ergot

_____k. Bacterial wilt

_____l. Seedling disease

5. Label the drawing below showing the life cycle of smut.



6. Name the disease when given the crop affected, symptom of the disease, and method of control.

a._____	Corn, sorghum, oats, barley, rye, wheat	Grayish white galls on any part of plant; filled with mass of black spores at maturity	Crop rotation; use resistant hybrids; treat seeds
b._____	Wheat, oats, barley, rye, grasses	Long brick-red pustules on stems and leaf sheaths; later turn black	Use resistant varieties and early-maturing varieties
c._____	Barley, wheat, rye	A blue black, hard mass replaces the kernels in the head of the plant	Rotation; sow disease-free seed
d._____	Soybeans, sorghum, corn	Light to dark brown irregular spots without marginal halo on leaves, stems, and pods	Destroy crop residue; treat seeds; use resistant varieties
e._____	Alfalfa, soybeans	Plants may dwarf; vein yellowing with dwarfing of stems	Good insect control

7. Identify diseases of plants collected in your community.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.

PLANT DISEASES
UNIT VIII

ANSWERS TO TEST

1.

a. 13	h. 10	o. 14
b. 8	i. 6	
c. 4	j. 11	
d. 12	k. 7	
e. 9	l. 3	
f. 5	m. 2	
g. 15	n. 1	

2. Any four of the following:

   a. Use of resistant varieties

   b. Eradication of alternate host plants

   c. Treatment of soil

   d. Rotation of crops

   e. Destruction of plant residue

   f. Use of disease-free seed

3.

   a. 3

   b. 4

   c. 2

   d. 1

4.

a. F	g. V
b. B	h. N
c. B	i. F
d. B	j. F
e. F	k. B
f. N	l. F

5. a. Seed planted; produces plant but seeds are destroyed by smut
   b. Black head
   c. Spores
   d. Infected young
   e. Infectious seed
6. a. Smut
   b. Rust
   c. Ergot
   d. Bacterial blight
   e. Mosaic
7. Evaluated to satisfaction of the instructor.

LANDSCAPING
UNIT IX

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to design a basic landscape plan showing the three major areas. He should also be able to determine location of the areas within the plan and apply the information to fit his local community. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with landscaping to the correct definitions.
2. Identify three major areas in a landscape plan.
3. List three overall objectives of a landscape plan.
4. Select from a list four factors to consider when selecting trees for a landscape plan.
5. List three factors to consider when selecting shrubs for a landscape plan.
6. Select from a list three factors to consider in selecting plants for a landscape plan.
7. Discuss three rules of thumb to follow in drawing a landscape plan.
8. Classify plants as trees or shrubs.
9. Identify symbols used in drawing a landscape plan.
10. Collect and identify ten samples of trees and shrubs used in his local community.
11. Draw a landscape plan using the basic symbols and plants found in his area.

LANDSCAPING
UNIT IX

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Provide student with a situation to landscape.

(NOTE: A landscape planning kit can be purchased from W. R. Brown Enterprises, Box 429, Claremont, California 91711.)

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete assignment sheets and turn in to instructor for evaluation.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Major Areas of Landscape Plan

2. TM 2--Basic Landscaping Symbols

D. Assignment sheets

1. Assignment Sheet #1--Collecting and Identifying Trees and Shrubs

2. Assignment Sheet #2--Drawing a Landscape Plan

E. Test

F. Answers to test

II. References:

A. Denisen, Ervin L. *Principles of Horticulture.* New York: The Macmillan Company.

B. Garrett, J. C. "The Beginning of a Landscape Plan." Circular E-683. Stillwater, Oklahoma: Agriculture Extension Service.

C. Garrett, J. C. "An Introduction to Landscape Planning." Circular E-682. Stillwater, Oklahoma: Agriculture Extension Service.

D. "Plant Material List." Stillwater, Oklahoma: Department of Horticulture, Oklahoma State University.

E. Garrett, J. C. *Landscape Plant Materials for Oklahoma.* Stillwater: Oklahoma Agricultural Extension Service.

F. *Landscaping the Home and School Grounds.* Columbia, South Carolina: State Department of Education, Office of Vocational Education, Vocational Agriculture Section, 1970.

G. *Landscaping the Home Grounds.* Columbus, Ohio: Agriculture Education Services, Department of Agricultural Education, The Ohio State University, 1969.

LANDSCAPING
UNIT IX

INFORMATION SHEET

I. Terms and definitions

A. Landscape design--Art of developing land for use and enjoyment in such a way as to provide maximum utility and beauty with a minimum of maintenance

B. Deciduous--Plant having no living leaves during dormant season

(NOTE: Deciduous plants drop their leaves by December.)

C. Evergreen--Plant retaining functional leaves throughout the year

D. Narrow-leaved--Plant having leaves of much greater length than width

E. Broad-leaved--Plants having a relatively broad leaf in relation to the length

F. Conifer--Cone-bearing trees; most kinds are evergreen cedar type trees

G. Formal balance--Precise and methodical treatment of an area to produce geometric exactness or exact pairs of plants or plant groups

H. Informal balance--Plant in masses

(NOTE: Plants should be grouped together for a pleasing effect versus duplicate balance in which duplicate plants are planted on both sides of design with center open.)

II. Major areas of a landscape plan (Transparency 1)

A. Public--Area that lies between the street or highway and the house

B. Private--Area used for outdoor relaxation, rest, entertainment, and general family enjoyment

(NOTE: This area is generally behind the house and may also be a children's play area.)

C. Service--Area conveniently located near the kitchen, utility room, garage, and driveway

INFORMATION SHEET

III. Objectives of a landscape plan

A. Attractive

B. Interesting

C. Convenient

D. Useful

E. Comfortable

(NOTE: Comfortable refers to comfort from shade, wind, dust, odor, and sound.)

IV. Factors to consider in selecting trees

A. Adaptability

B. Freedom from major disease and insects or pests

C. Use of tree

D. Size

(NOTE: Tall houses require tall growing trees. Low rambling houses require moderate-sized trees.)

E. Shape

V. Factors to consider in selecting shrubs

A. Placement of shrubs

B. Size in width and height

C. Shape

D. Winter and/or seasonal color

VI. Factors to consider in selecting plants

A. Climatic conditions

B. Ultimate size

C. Shape

INFORMATION SHEET

VII. Rules of thumb for drawing a landscape plan

A. Do not plant shrubs closer than three feet to the house

1. Make sure the average line of shrub height does not exceed one-third of the eaves line height

2. Plant all shrubs in groups of three or more of a kind except for accent

3. Do not plant duplicate shrubs or ground cover without eliminating and controlling bermuda grass first

4. Do not plant thorny plants where people pass

B. Do not overplant

C. Do not cover windows

D. Plant large plants at least twenty feet from house

E. Beware of obstacles

1. Sewer

2. Power lines

3. Underground cables

F. Consider assets of landscape

1. Dust

2. Odor

3. Sound

4. Sight

5. View

INFORMATION SHEET

VIII. Classification of plants

Name	Shrub	Tree	Height	Spread
Lacebark Elm		X	50 - 60'	35 - 50'
*Burford Holly	X		8 - 10'	6 - 8'
*Pyracantha	X		8 - 12'	8 - 12'
Fruitless Mulberry		X	30 - 40'	30 - 40'
Redbud		X	15 - 30'	10 - 20'
*Red Cedar		X	20 - 90'	7 - 30'
*Glossy Abelia	X		6 - 8'	5 - 8'
Sycamore		X	50 - 75'	50 - 60'
Green Ash		X	50 - 70'	40 - 50'
*Arborvitae	X		4 - 20'	4 - 15'
*Pfitzer Juniper	X		4 - 8'	10 - 18'
*Euonymus	X		4 - 8'	5 - 10'
*Photinia	X		12 - 15'	8 - 10'
Scotch Pine		X	40 - 50'	18 - 20'
Austrian Pine		X	40 - 60'	18 - 25'
*Oregongrape	X		3 - 6'	3 - 6'
Golden Rain Tree		X	15 - 20'	15 - 20'
Forsythia	X		6 - 8'	6 - 8'
Bald Cypress		X	100 - 150'	30 - 50'
Vitex	X		10 - 12'	8 - 10'
Privet	X		10 - 15'	10 - 12'
Pecan		X	70 - 150'	50 - 100'
Shummard Oak		X	50 - 70'	40 - 60'
Bur Oak		X	50 - 75'	35 - 60'
*Nandina	X		4 - 6'	3 - 4'

*Evergreen

INFORMATION SHEET

IX. Basic landscape symbols (Transparency 2)

A. Vine on support

B. Wood or masonry fence

C. Walk

D. Drive

E. Stepping stones

F. Medium to large shade trees

G. Small tree

H. Narrow leaf evergreen upright

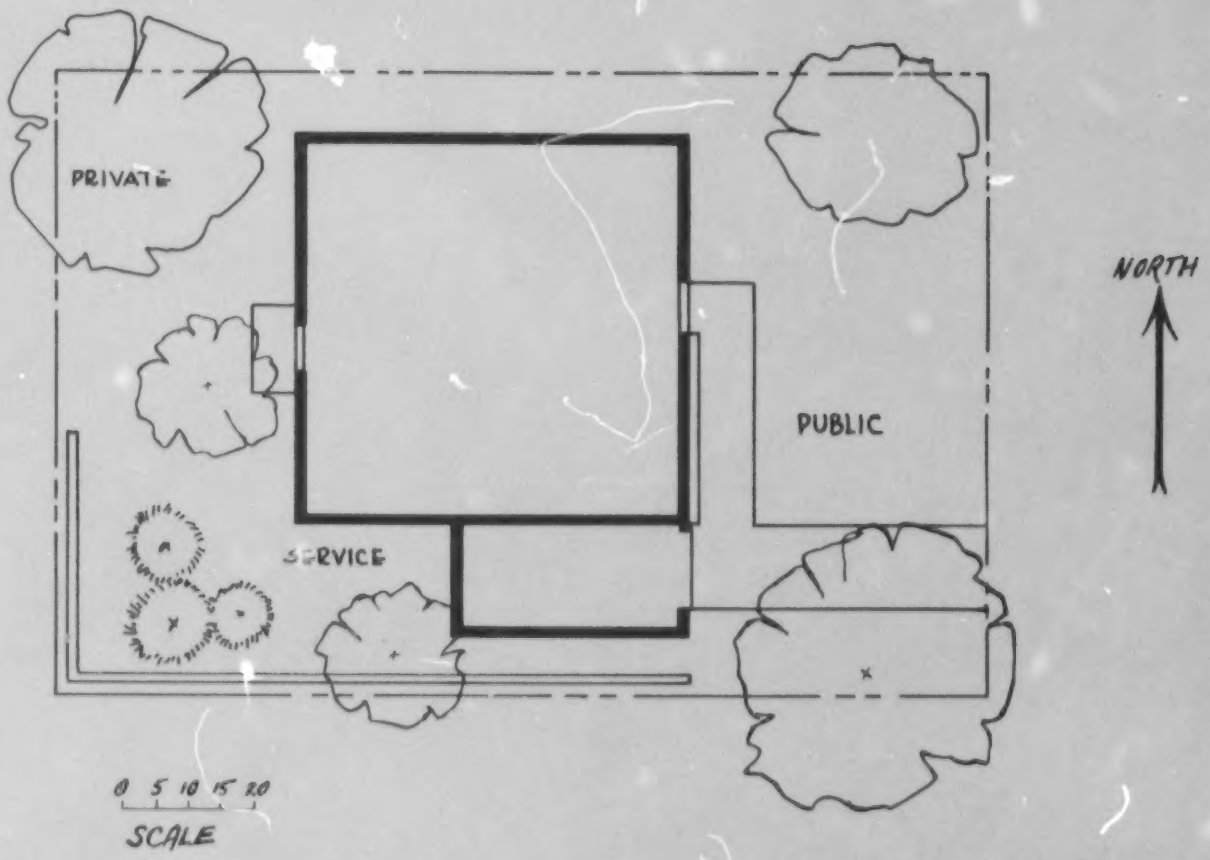
I. Narrow leaf evergreen low, spreading

J. Broadleaf evergreen

K. Sheared hedge

L. Shrub border or group

Major Areas of Landscape Plan

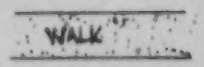


68600

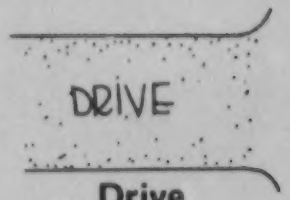
Basic Landscaping Symbols

Vine on Support

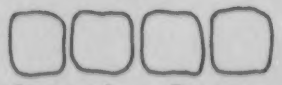
Wood or Masonry Fence

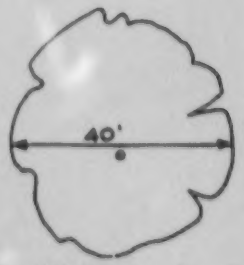


Walk

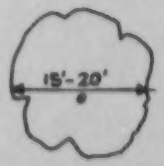


Drive


Stepping Stones



Medium to Large Shade Tree



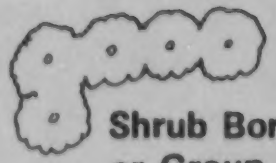
Small Tree

Narrow Leaf Evergreen Upright

Narrow Leaf Evergreen Low, Spreading

Broadleaf Evergreen

Sheared Hedge


Shrub Border or Group

00290

LANDSCAPING
UNIT IX

ASSIGNMENT SHEET #1--COLLECTING AND IDENTIFYING TREES AND SHRUBS

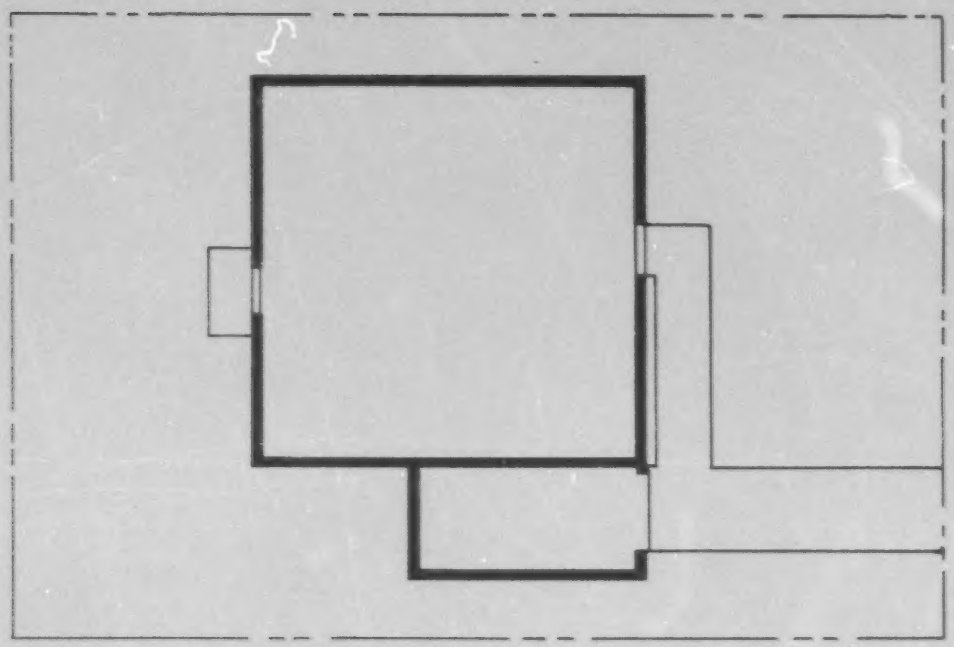
Collect and identify ten samples of trees and shrubs found in your local community. Bring samples of plants to class with the completed chart.

Plant Name	Tree	Vine	Shrub	Deciduous	Evergreen
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

LANDSCAPING
UNIT IX

ASSIGNMENT SHEET #2--DRAWING A LANDSCAPE PLAN

Using the basic symbols, draw a rough draft of a landscape plan showing the location of trees, shrubs, flower beds, and other features. Your plan should be attractive, interesting, convenient, and useful.



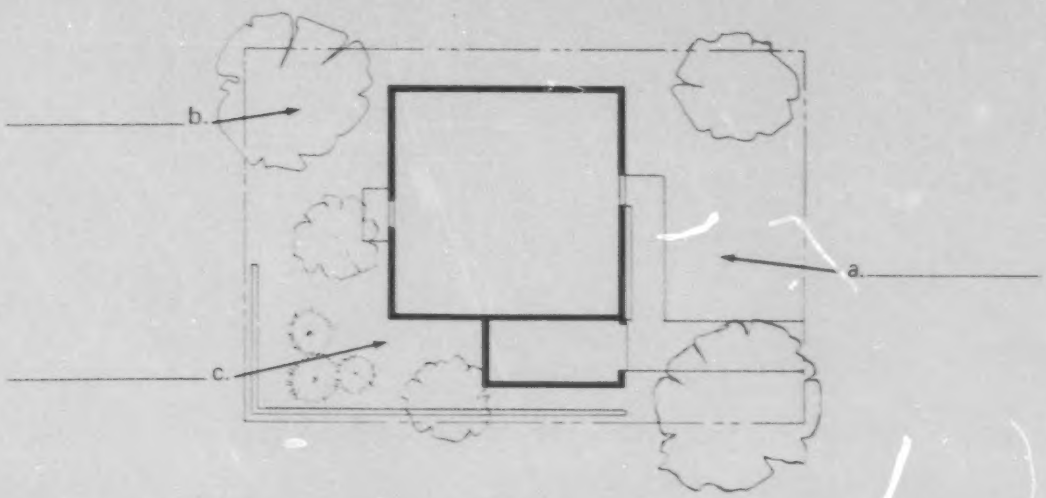
LANDSCAPING
UNIT IX

TEST

1. Match the terms on the right to the correct definition.

_____a. Plant retaining functional leaves throughout the year	1. Landscape design
_____b. Cone-bearing trees; most kinds are evergreen cedar type trees	2. Deciduous
_____c. Plant in masses	3. Evergreen
_____d. Plant having no living leaves during dormant season	4. Narrow-leaved
_____e. Plants having a relatively broad leaf in relation to the length	5. Broad-leaved
_____f. Precise and methodical treatment of an area to produce geometric exactness or exact pairs of plant or plant groups	6. Conifer
_____g. Art of developing land for use and enjoyment in such a way as to provide maximum utility and beauty with a minimum of maintenance	7. Formal balance
_____h. Plant having leaves of much greater length than width	8. Informal balance

2. Identify three major areas in a landscape plan.



3. List three overall objectives of a landscape plan.

a.

b.

c.

4. Select from the list below four factors to consider when selecting trees for a landscape plan by placing an "X" in the blanks.

_____a. Adaptability

_____b. Color

_____c. Season

_____d. Freedom from major disease and insects or pests

_____e. Use of tree

_____f. Size

5. List three factors to consider when selecting shrubs for a landscape plan.

a.

b.

c.

6. Select from the list below three factors to consider in selecting plants for a landscape plan by placing an "X" in the blanks.

_____a. Climatic conditions

_____b. Winter growth

_____c. Ultimate size

_____d. Shape

_____e. Color

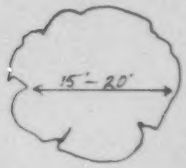
_____f. Depth

7. Discuss in a short paragraph three rules of thumb to follow in drawing a landscape plan.

8. Classify the following plants by placing a "T" in front of the trees and an "S" in front of the shrubs.

_____a. Burford Holly
_____b. Pyracantha
_____c. Redbud
_____d. Sycamore
_____e. Arborvitae
_____f. Scotch Pine
_____g. Bald Cypress
_____h. Privet
_____i. Bur Oak
_____j. Nandina

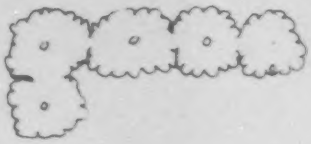
9. Identify the following symbols used in drawing a landscape plan.



a._____

b._____

c._____



d._____

10. Collect and identify ten samples of trees and shrubs used in your local community.

11. Draw a landscape plan using the basic symbols and plants found in your area.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

LANDSCAPING
UNIT IX

ANSWERS TO TEST

1. a. 3 e. 5
   b. 6 f. 7
   c. 8 g. 1
   d. 2 h. 4
2. a. Public
   b. Private or children play area
   c. Service
3. Any three of the following:
   a. Attractive
   b. Interesting
   c. Convenient
   d. Useful
   e. Comfortable
4. a, d, e, f
5. Any three of the following:
   a. Placement of shrubs
   b. Size in width and height
   c. Shape
   d. Winter and/or seasonal color
6. a, c, d
7. Any three of the following:
   a. Do not plant shrubs closer than three feet to the house
      1) Make sure the average line of shrub height does not exceed one-third of the eaves line height

2) Plant all shrubs in groups of three or more of a kind except for accent

3) Do not plant duplicate shrubs or ground cover without eliminating and controlling bermuda grass first

4) Do not plant thorny plants where people pass

b. Do not overplant

c. Do not cover windows

d. Plant large plants at least twenty feet from house

e. Beware of obstacles

1) Sewer

2) Power lines

3) Underground cables

f. Consider assets of landscape

1) Dust

2) Odor

3) Sound

4) Sight

5) View

8.

a.	S	f.	T
b.	S	g.	T
c.	T	h.	S
d.	T	i.	T
e.	S	j.	S

9. a. Small tree

b. Broadleaf evergreen

c. Sheared hedge

d. Shrub border or group

10. Evaluated to satisfaction of instructor.

11. Evaluated to satisfaction of instructor.

ANIMAL NUTRIENTS
UNIT I

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to discuss the effects of feeding antibiotics and write the purpose of feed additives. He should be able to match nutrients with their sources, functions, and deficiency symptoms. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with animal nutrients to the correct definitions.
2. List the six major classes of nutrients.
3. Select from a list two types of protein.
4. Match nutrients with their functions.
5. Select from a list the major minerals.
6. List three minor or trace minerals.
7. Match nutrients to their sources.
8. Match vitamins to the correct deficiency symptoms.
9. Match minerals to the correct deficiency symptoms.
10. Write the purpose of feed additives.
11. Discuss the effects of feeding antibiotics.

ANIMAL NUTRIENTS
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objectives.

B. Provide student with information sheet.

C. Discuss terminal and specific objectives.

D. Discuss information sheet.

E. Provide opportunity for student to look at a feed tag.

F. Give test.

II. Student:

A. Read objectives.

B. Study information sheet and take notes.

C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Test

D. Answers to test

II. References:

A. Cassard, Daniel W., and Elwood M. Juergenson. *Approved Practices in Feeds and Feeding.* Danville, Illinois: The Interstate Printers and Publishers, Inc., 1963.

B. Morrison, Frank B. *Feeds and Feeding, Abridged,* 9th ed. Claremont, Ontario, Canada: Morrison Publishing Company, 1961.

C. *Instructional Materials for Vocational Agriculture II.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

D. *Nutrient Requirements for Beef Cattle,* 4th ed. National Academy of Sciences, 1970.

E. Bundy, Clarence E., and Ronald V. Diggins. *Livestock and Poultry Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961.

ANIMAL NUTRIENTS
UNIT I

INFORMATION SHEET

I. Terms and definitions

A. Nutrient--Single class of foods or group of like foods that aid in the support of life

B. Total digestible nutrient (TDN)--That portion of a nutrient which may be digested and taken into the animal body

C. Feed additive--Powerful substance which is added in small amounts to feeds for promoting rapid growth, for more efficient feed utilization, and for disease treatment

D. Protein--Nutrient which supplies building materials for body growth and repair

E. Digestible protein--Amount of crude protein in a feed that can be digested by the animal

F. Starch--Carbohydrate which supplies energy to animals

G. Vitamin--Complex chemical essential for normal body functions

H. Mineral--Element which is necessary for proper body functions and life processes

I. Amino acid--Building block of protein

J. Antibiotic--Substance used in small amounts to help prevent and control certain diseases in animals

K. Urea--Synthetic protein substance used in ruminant rations

(NOTE: A rule of thumb says that urea should make up not more than three percent of a grain mix for dairy cows; the beef cow should not get more than 1/4# of actual urea per day.)

II. Major classes of nutrients

A. Water

B. Protein

C. Carbohydrate

D. Mineral

E. Vitamin

F. Fat

INFORMATION SHEET

III. Two types of protein

A. Plant

Examples: Soybean meal, cottonseed meal, linseed meal

B. Animal

Examples: Tankage, fish meal, meat scraps, dried milk products

IV. Functions of nutrients

A. Water

1. Transports nutrients and waste materials
2. Regulates body temperature

B. Protein

1. Develops muscle tissue
2. Repairs worn-out tissue

C. Carbohydrate

1. Supplies heat and energy
2. Stores heat and energy

D. Mineral

1. Aids in skeletal development
2. Provides chemical balance for proper body functions

E. Vitamins

1. Vitamin A
   a. Aids in disease resistance
   b. Aids in development of nerve cells
2. Vitamin D--Aids in skeletal development (bones, teeth, etc.)
3. Vitamin E--Is necessary for reproduction
4. Vitamin K--Is necessary for blood clotting

INFORMATION SHEET

5. Vitamin B

a. Promotes growth

b. Prevents skin infections

F. Fat

1. Provides source of energy

2. Provides source of insulation

V. Major minerals

A. Calcium (Ca)

B. Phosphorus (P)

C. Sodium chloride (NaCl)

D. Potassium (K)

E. Sulfur (S)

VI. Minor or trace minerals

A. Iron (Fe)

B. Copper (Cu)

C. Zinc (Zn)

D. Iodine (I)

E. Cobalt (Co)

F. Magnesium (Mg)

VII. Sources of nutrients

A. Protein

1. Cottonseed meal

2. Linseed meal

INFORMATION SHEET

3. Soybean meal
4. Skim milk
5. Tankage
6. Alfalfa hay

B. Carbohydrate

1. Cereal grains

   Examples: Wheat, oats, barley, corn

2. Nonlegume roughage
3. Molasses

C. Fat

1. Tallow
2. Animal products
3. Seeds

D. Mineral

1. Almost all common livestock feeds
2. Commercially prepared mineral and trace mineral mix

E. Vitamin

1. Most feeds
2. Produced in the rumen
3. Commercial vitamin premix

VIII. Symptoms of vitamin deficiencies

A. Vitamin A

1. Blindness
2. Loss of young
3. Poor development of bones
4. Slow growth

INFORMATION SHEET

B. Vitamin D

1. Bone deformities
2. Rickets

C. Vitamin E

1. Loss of young
2. Failure to reproduce

D. Vitamin K

1. Internal bleeding
2. Lung deformities resulting in death

E. Vitamin B complex

1. Muscular weakness
2. Abnormalities of young

IX. Symptoms of mineral deficiencies

A. Calcium

1. Rickets
2. Broken bones
3. Poor gains
4. Milk fever

B. Phosphorus

1. Lameness
2. Stiffness of joints
3. Less appetite
4. Reduced rate of gain
5. Decreased heat cycle

C. Sodium chloride

1. Lack of appetite
2. Unthrifty appearance

INFORMATION SHEET

D. Potassium

1. Slow growth rate
2. Reduced feed consumption
3. Stiffness
4. Shock

E. Sulfur--Unthriftiness

F. Iron--Anemia

G. Iodine

1. Hairless pigs
2. Goiter

H. Copper--Anemia

I. Cobalt

1. Loss of appetite
2. Unthriftiness
3. Delayed sexual development

X. Purpose of feed additives--Increase growth and feed efficiency

Examples: Stilbestrol, progesterone, testosterone

XI. Effects of feeding antibiotics

Examples: Aureomycin, Terramycin, Penicellin, Streptomycin

A. Increased gains

B. Prevention and control of certain diseases

ANIMAL NUTRIENTS
UNIT I

TEST

1. Match terms on the right to the correct definition.

_____a. Nutrient which supplies building materials for body growth and repair	1. Nutrient
_____b. Element which is necessary for proper body functions and life processes	2. Total digestible nutrient (TDN)
_____c. Amount of crude protein in a feed that can be digested by the animal	3. Feed additive
_____d. Substance used in small amounts to help prevent and control certain diseases in animals	4. Protein
_____e. Carbohydrate which supplies energy to animals	5. Digestible protein
_____f. Synthetic protein substance used in ruminant rations	6. Starch
_____g. That portion of a nutrient which may be digested and taken into the animal body	7. Vitamin
_____h. Building block of protein	8. Mineral
_____i. Powerful substance which is added in small amounts to feeds for promoting rapid growth, for more efficient feed utilization, and for disease treatment	9. Amino acid
_____j. Single class of foods or group of like foods that aid in the support of life	10. Antibiotic
_____k. Complex chemical essential for normal body functions	11. Urea

2. List the six major classes of nutrients.

a.

b.

c.

d.

e.

f.

3. Select from the list below two types of protein by placing an "X" in the blanks.

_____a. Old

_____b. Plant

_____c. New

_____d. Animal

_____e. Yellow

_____f. Supplement

_____g. Corn

4. Match the nutrients on the right to the correct functions.

_____a. Supplies heat and energy; stores heat and energy

_____b. Transports nutrients and waste materials; regulates body temperature

_____c. Aids in skeletal development; provides chemical balance for proper body functions

_____d. Provides source of energy; provides source of insulation

_____e. Develops muscle tissue; repairs worn-out tissue

1. Water
2. Protein
3. Carbohydrate
4. Mineral
5. Fat

5. Select from the list below the major minerals by placing an "X" in the blanks.

_____a. Calcium

_____b. Gold

_____c. Phosphorus

_____d. Sodium chloride

_____e. Silver

_____f. Sulfur

_____g. Argon

_____h. Helium

_____i. Potassium

_____j. Boron

_____k. Silica

_____l. Sugar

6. List three minor or trace minerals.

a.

b.

c.

7. Match the nutrients on the right to the proper source or sources. Nutrients may be used more than once.

_____a. Tallow	1. Protein
_____b. Seeds	2. Carbohydrate
_____c. Commercial vitamin premix	3. Fat
_____d. Cottonseed meal	4. Mineral
_____e. Cereal grains	5. Vitamin
_____f. Skim milk	
_____g. Animal products	
_____h. Soybean meal	
_____i. Nonlegume roughage	
_____j. Commercially prepared mineral and trace mineral mix	
_____k. Tankage	
_____l. Molasses	
_____m. Alfalfa hay	

8. Match the vitamins on the right to the correct deficiency symptom.

_____a. Internal bleeding; lung deformities resulting in death	1. Vitamin A
_____b. Blindness; loss of young; poor development of bones; slow growth	2. Vitamin B complex
_____c. Loss of young; failure to reproduce	3. Vitamin D
_____d. Muscle weakness; abnormalities of young	4. Vitamin E
_____e. Bone deformities; rickets	5. Vitamin K

9. Match the minerals on the right to the correct deficiency symptom.

_____a. Lameness; stiffness of joints; less appetite; reduces rate of gain; decreased heat cycle	1. Calcium
_____b. Loss of appetite; unthriftiness; delayed sexual development	2. Phosphorus
_____c. Slow growth rate; reduced feed consumption; stiffness; shock	3. Potassium
_____d. Hairless pigs; goiter	4. Iron
_____e. Anemia	5. Iodine
_____f. Rickets; broken bones; poor gains; milk fever	6. Cobalt

10. Write the purpose of feed additives.

11. Discuss the effects of feeding antibiotics.

ANIMAL NUTRIENTS
UNIT I

ANSWERS TO TEST

1. a. 4
   b. 8
   c. 5
   d. 10
   e. 6
   f. 11
   g. 2
   h. 9
   i. 3
   j. 1
   k. 7
2. a. Water
   b. Protein
   c. Carbohydrate
   d. Mineral
   e. Vitamin
   f. Fat
3. b, d
4. a. 3
   b. 1
   c. 4
   d. 5
   e. 2
5. a, c, d, f, i
6. Any three of the following:
   a. Iron
   b. Copper
   c. Zinc
   d. Iodine
   e. Cobalt
   f. Magnesium

7. a. 3
   b. 3
   c. 5
   d. 1
   e. 2
   f. 1
   g. 3
   h. 1
   i. 2
   j. 4
   k. 1
   l. 2
   m. 1
8. a. 5
   b. 1
   c. 4
   d. 2
   e. 3
9. a. 2
   b. 6
   c. 3
   d. 5
   e. 4
   f. 1
10. Increase growth and feed efficiency
11. Discussion should include:
    a. Increased gains
    b. Prevention and control of certain diseases

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to complete a chart showing the composition of a feed, determine value of a feed, classify feeds into concentration and roughage, and compute rations by the Pearson's square and trial and error methods. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with composition and classification of feeds to the correct definitions.
2. Complete a chart showing composition of feed.
3. List three methods used to determine value of a feed.
4. Classify feeds into the proper category.
5. Select from a list three requirements that every commercial feed company must state on its feed tag.
6. Classify sugars as compound or simple.
7. Describe the procedure for determining water and dry matter content of a feed.
8. Match percent of protein required in a ration with size of various livestock.
9. Compare the composition of feeds as to digestible protein and total digestible nutrients.
10. Determine the total percentage of digestible protein and total digestible nutrients of feeds.
11. Balance a ration using the Pearson's square method.
12. Balance a ration for digestible protein, dry matter, and total digestible nutrients using the trial and error method.
13. Determine protein requirements for various animals.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet and procedures for completing the assignment sheets.

F. Provide the students with a copy of a commercial feed tag.

G. Take students on a field trip to a food company to see how feeds are mixed and rations are determined, if possible.

H. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete assignment sheets.

D. Attempt to figure a ration for animals included in supervised training program.

E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Feed Composition

2. TM 2--Classification of Concentrates

3. TM 3--Classification of Roughages

4. TM 4--Commercial Feed Tag

D. Assignment sheets

1. Assignment Sheet #1--Determining TDN and Digestible Protein Content of Basic Feeds

2. Assignment Sheet #2--Balancing Rations Using Pearson's Square

3. Assignment Sheet #3--Working a Sample Ration for Fattening a Beef Animal

4. Assignment Sheet #4--Working a Sample Ration for Fattening Swine

5. Assignment Sheet #5--Determine Protein Requirements for Various Animals

E. Answers to assignment sheets

F. Test

G. Answers to test

II. References:

A. *General Facts on Livestock Feeding.* Urbana, Illinois: University of Illinois.

B. Morrison, Frank B. *Feeds and Feeding, Abridged,* 9th ed. Claremont, Ontario, Canada: Morrison Publishing Company, 1961.

C. Cassard, Daniel W., and Elwood M. Juergenson. *Approved Practices in Feeds and Feeding.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

D. *Swine Feeds and Feeding.* Urbana, Illinois: University of Illinois.

E. *Feeding Dairy Cattle.* Farmers Bulletin No. 2153. United States Department of Agriculture.

F. Henderson, H. O., and Paul M. Reaves. *Dairy Cattle Feeding and Management.* New York: John Wiley and Sons, Inc.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

INFORMATION SHEET

I. Terms and definitions

A. Fiber--Tough part of a feed; not very digestible

B. Roughage--Feed that is high in fiber or nondigestible material and low in total digestible nutrients

C. Concentrate--Feed that is high in total digestible nutrients and low in fiber

D. Silage--Feed from crops cured and stored green or without drying

E. Ration--Feed allowed for a given animal during a day of twenty-four hours

(NOTE: The feed may be fed all at once or at intervals throughout the day.)

F. Balanced ration--Ration which furnishes the several nutrients in such proportion and amount as will properly nourish a given animal for twenty-four hours

G. Supplement--Protein or vitamin added to a feed

H. Crude protein--Total amount of protein contained in a feed

I. Digestible protein--Portion of crude protein which may be digested by the animal

J. Total digestible nutrients (TDN)--That portion of a feed which is digested and used in the animal's body

K. Pasturage--Plant growth available to animals on the range or in the pasture

L. Protein--Organic compound consisting of carbon, hydrogen, oxygen, nitrogen, and sulfur

M. Fat--Organic compound composed of carbon, hydrogen, and oxygen

N. Dry matter (DM)--Average percentage of dry material in a feed found by weighing the feed, drying by heat, and reweighing

INFORMATION SHEET

II. Composition of feed (Transparency 1)

A. Water

B. Dry matter

1. Ash (minerals)

2. Organic matter

a. Protein

b. Carbohydrates

1) Crude fiber (cellulose)

2) Nitrogen-free extract

a) Simple sugar

b) Starch

c) Compound sugar

c. Vitamins

d. Fats

III. Methods used to determine value of feed

A. Cost per pound of TDN

B. Cost per pound of protein

C. Cost per pound of feed

IV. Classification of feeds

A. Concentrates (Transparency 2)

1. Grains

Examples: Corn, wheat, oats, milo, barley

2. Grain by-products

Examples: Wheat bran, wheat standard middlings

3. Molasses

Examples: Cane, beet

INFORMATION SHEET

4. Oil meals

Examples: Soybean, cottonseed, linseed, peanut

5. Animal products

Examples: Meat scraps, tankage, fish meal, dried dairy products

B. Roughages (Transparency 3)

1. Dry

a. Hays

Examples: Grass, legume, alfalfa

b. Hulls

Examples: Cottonseed, peanut, rice

c. Straws

Examples: Wheat, oats, barley

2. Green

a. Roots

b. Grasses

c. Tubers

3. Silage

Examples: Corn forage, sorghum forage, grass

V. Commercial feed tag requirements (Transparency 4)

A. Minimum of crude protein

B. Minimum of crude fat

C. Maximum of crude fiber

(NOTE: Laws govern the sale of commercial feeds and mineral mixtures to protect the purchaser. The ingredients of a mixture must be labeled with contents, but the percentage of each is not required.)

VI. Classification of sugars

A. Simple

1. Glucose

2. Fructose

3. Galactose

INFORMATION SHEET

B. Compound

1. Maltose
2. Sucrose
3. Lactose

VII. Procedure for determining water and dry matter content of feed

A. Weigh feed

B. Dry in oven

C. Weigh again

(NOTE: The difference in the weights is the water or moisture content. Dry matter content should be the same as second weighing. Generally, feed grains are about 90 percent dry matter and 10 percent moisture.)

VIII. Percent of protein required for various livestock

A. Swine

1. Birth to 15 pounds, 20% protein
2. 15 to 50 pounds, 16 - 18% protein
3. 50 to 125 pounds, 16% protein
4. 125 to 240 pounds, 14% protein

B. Cattle

Body Wt. (lb)	Avg Daily Gain (lb)	Daily Dry Matter per Animal (lb)	Total Protein (lb)	Digestible Protein (lb)
Finishing Steer Calves				
300	1.9	6.8	0.89	0.59
400	2.1	9.8	1.21	0.81
500	2.3	12.3	1.50	1.00
600	2.4	14.4	1.76	1.17
700	2.4	16.3	1.96	1.30
800	2.4	18.0	2.07	1.34
900	2.4	19.6	2.18	1.39
1000	2.3	20.8	2.30	1.49

INFORMATION SHEET

Finishing Heifer Calves

300	1.7	6.8	0.89	0.59
400	1.9	9.8	1.21	0.81
500	2.0	12.4	1.51	1.01
600	2.1	14.7	1.79	1.19
700	2.2	16.6	1.99	1.31
800	2.1	18.0	2.07	1.34
900	2.1	19.4	2.15	1.38

Finishing Yearling Steers

500	2.9	14.7	1.63	1.04
600	2.9	17.0	1.88	1.20
700	2.9	19.1	2.11	1.35
800	2.9	21.1	2.33	1.50
900	2.9	22.9	2.54	1.63
1000	2.8	24.1	2.68	1.72
1100	2.7	25.3	2.82	1.81

Finishing Yearling Heifers

500	2.7	15.7	1.74	1.12
600	2.7	17.7	1.96	1.26
700	2.7	19.8	2.18	1.40
800	2.7	21.9	2.42	1.55
900	2.6	23.7	2.63	1.69
1000	2.4	24.3	2.70	1.72

Finishing Two-Year-Old Steers

700	3.1	21.3	2.26	1.51
800	3.1	23.3	2.57	1.65
900	3.1	25.3	2.80	1.77
1000	3.1	27.4	3.04	1.83
1100	3.1	29.5	3.28	1.89
1200	2.9	30.1	3.34	2.13

Growing Steers

300	0.00	5.6	0.43	0.22
	0.55	6.0	0.68	0.46
	1.10	6.0	0.77	0.51
	1.65	5.9	0.87	0.60
400	0.00	6.8	0.53	0.28
	0.55	8.8	0.90	0.56
	1.10	9.4	1.07	0.70
	1.65	9.5	1.13	0.73

INFORMATION SHEET

500	0.00	8.0	0.62	0.34
	0.55	10.9	1.04	0.63
	1.10	12.5	1.33	0.84
	1.65	12.8	1.43	0.92
600	0.00	9.2	0.71	0.39
	0.55	12.5	1.13	0.68
	1.10	15.3	1.56	0.97
	1.65	15.8	1.76	1.13
700	0.00	10.4	0.81	0.44
	0.55	14.1	1.23	0.72
	1.10	17.8	1.74	1.05
	1.65	18.4	1.96	1.24
800	0.00	11.5	0.90	0.49
	0.55	15.7	1.33	0.75
	1.10	19.7	1.83	1.08
	1.65	20.3	1.95	1.17
900	0.00	12.6	0.99	0.54
	0.55	17.3	1.43	0.77
	1.10	21.7	1.92	1.10
	1.65	22.2	1.94	1.11
Growing Heifers				
300	0.00	5.6	0.43	0.22
	0.55	6.2	0.73	0.48
	1.10	5.9	0.76	0.51
	1.65	6.0	0.87	0.61
400	0.00	6.8	0.53	0.28
	0.55	9.0	0.93	0.58
	1.10	9.5	1.09	0.71
	1.65	10.2	1.19	0.77
500	0.00	8.0	0.62	0.34
	0.55	11.1	1.06	0.64
	1.10	12.9	1.39	0.87
	1.65	13.8	1.53	0.97
600	0.00	9.2	0.71	0.39
	0.55	12.7	1.15	0.69
	1.10	16.1	1.65	1.01
	1.65	17.0	1.88	1.20

INFORMATION SHEET

700	0.00	10.4	0.81	0.44
	0.55	14.3	1.25	0.72
	1.10	18.9	1.85	1.11
	1.65	19.7	2.05	1.32
800	0.00	11.5	0.90	0.49
	0.55	15.8	1.34	0.75
	1.10	20.9	1.94	1.14
	1.65	21.7	2.08	1.26
900	0.00	12.6	0.99	0.54
	0.55	17.3	1.43	0.77
	1.10	22.9	2.03	1.18
	1.65	23.7	2.07	1.20

Dry Pregnant Mature Cows

700	-	11.9	0.69	0.32
800	-	13.1	0.77	0.36
900	-	14.3	0.85	0.40
1000	-	15.1	0.87	0.42
1100	-	16.7	0.97	0.46
1200	-	17.5	1.03	0.49
1300	-	18.7	1.09	0.52
1400	-	19.9	1.14	0.56

Cows Nursing Calves, First 3-4 Months Postpartum

700	-	18.0	1.64	0.95
800	-	19.4	1.78	1.03
900	-	20.8	1.92	1.12
1000	-	21.9	1.99	1.18
1100	-	23.1	2.14	1.26
1200	-	24.3	2.28	1.34

Bulls, Growth and Maintenance (Moderate Activity)

600	2.3	18.4	2.60	1.81
700	2.2	19.7	2.72	1.87
800	2.1	21.0	2.83	1.93
900	1.9	22.4	2.98	2.01
1000	1.7	24.4	3.25	2.19
1100	1.5	26.4	3.52	2.38
1200	1.4	26.1	3.45	2.24
1300	1.2	25.7	3.17	2.10
1400	1.0	26.1	3.12	2.04
1500	0.8	26.7	3.11	2.00
1600	0.5	25.7	2.87	1.81
1700	0.2	23.3	2.45	1.51
1800	0.0	22.1	2.21	1.34
1900	0.0	22.9	2.29	1.39
2000	0.0	23.7	2.37	1.44

Courtesy of Dr. Joe Hughes, Animal Science Department, Oklahoma State University, Stillwater, Oklahoma.

INFORMATION SHEET

C. Sheep

NUTRIENT REQUIREMENTS OF SHEEP IN PERCENTAGE OR AMOUNT PER POUND OF TOTAL RATION

(Based on air-dry feed containing 90 percent dry matter)

		Daily Feed		Percentage of ration or amount per lb of feed			
Body weight lb	Daily gain or loss lb	Per animal lb	% live weight	TDN %	Protein %	DP %	Protein #/day
EWES--Nonlactating and first 15 weeks of gestation							
100	0.07	2.6	2.6	50	8.0	4.4	.21
120	0.07	3.0	2.5	50	8.0	4.4	.24
140	0.07	3.4	2.4	50	8.0	4.4	.27
160	0.07	3.8	2.4	50	8.0	4.4	.30
EWES--Last 6 weeks of gestation							
100	0.37	3.8	3.8	52	8.4	4.6	.32
120	0.37	4.2	3.5	52	8.2	4.5	.34
140	0.37	4.6	3.3	52	8.0	4.4	.37
160	0.37	4.8	3.0	52	7.8	4.3	.37
EWES--First 8 to 10 weeks of lactation							
100	-0.08	4.6	4.6	59	8.7	4.8	.40
120	-0.08	5.0	4.2	58	8.4	4.6	.42
140	-0.08	5.5	3.9	56	8.0	4.4	.44
160	-0.08	5.7	3.6	55	8.0	4.4	.46
EWES--Last 12 to 14 weeks of lactation							
100	0.07	3.8	3.8	52	8.4	4.6	.32
120	0.07	4.2	3.5	52	8.2	4.5	.34
140	0.07	4.6	3.3	52	8.0	4.4	.37
160	0.07	4.8	3.0	52	7.8	4.3	.37
EWES--Replacement lambs and yearlings							
60	0.30	2.7	4.5	55	11.0	6.0	.30
80	0.20	3.2	4.0	50	8.7	4.8	.28
100	0.14	3.4	3.4	50	7.6	4.2	.26
120	0.07	3.4	2.8	50	7.0	3.9	.24

INFORMATION SHEET

RAMS--Lambs and yearlings

80	0.40	3.2	4.0	62	10.0	5.5	.32
100	0.30	3.7	3.7	57	8.6	4.7	.32
120	0.20	4.2	3.5	50	7.6	4.2	.32
140	0.10	4.6	3.3	50	6.9	3.8	.32
160	0.10	4.8	3.0	50	6.6	3.6	.32

LAMBS--Fattening

60	0.35	2.7	4.5	55	12.0	6.6	.32
70	0.40	3.1	4.4	58	11.0	6.1	.34
80	0.45	3.4	4.3	62	10.7	5.9	.36
90	0.45	3.7	4.2	62	9.5	5.3	.35
100	0.40	3.9	3.9	62	9.4	5.2	.37

Courtesy of Dr. Joe Hughes, Animal Science Department, Oklahoma State University, Stillwater, Oklahoma.

IX. Comparison of feed composition

(NOTE: The following information was taken from Morrison's *Feeds and Feeding*, Table I.)

Feed	DP	TDN	Cost/lb
Milo grain	8.5%	79.4%	$ .042
Corn, dent, Grade #2	7.0%	80.0%	$ .061
Wheat, average all types	11.1%	80.0%	$ .070
Oats (not including Pacific Coast states)	9.4%	70.1%	$ .056
Alfalfa hay, average all analysis	10.9%	50.7%	$ .035

A. Cost per pound of protein

Milo	.042 ÷ .085	=	$ .494/# protein
Corn	.061 ÷ .070	=	$ .871/# protein
Wheat	.070 ÷ .111	=	$ .630/# protein
Oats	.056 ÷ .094	=	$ .596/# protein
Alfalfa	.035 ÷ .109	=	$ .321/# protein

B. Cost per pound of TDN

Milo	.042 ÷ .794	=	$ .052/# TDN
Corn	.061 ÷ .800	=	$ .076/# TDN
Wheat	.070 ÷ .800	=	$ .087/# TDN
Oats	.056 ÷ .701	=	$ .079/# TDN
Alfalfa	.035 ÷ .507	=	$ .069/# TDN

INFORMATION SHEET

X. Determining total percentage of DP and TDN in feeds--Use Morrison's *Feeds and Feeding*, Table I

XI. Balancing rations using Pearson's square method

A. Select amount of protein required

B. Place in square

C. Select feeds

D. Cross-subtract

(NOTE: This gives parts of each feed needed in the ration.)

Example:

		Part	%	#/100#
Milo 8.5%		25	77	77#
	16%			
SBM 41.0%		7.5	23	23#
		32.5	100%	100#

XII. Balancing rations for dry matter, digestible protein, and total digestible nutrients--Trial and error method

A. Determine type of animal

B. Look up requirements of the animal in Morrison's *Feeds and Feeding*, Table III

C. Select feeds to use

D. Look up composition (Morrison's *Feeds and Feeding*, Table I)

E. Determine amount of each feed in the ration

F. Compute the ration

INFORMATION SHEET

Example:

	DM	DP	TDN
Corn	85.0%	7.0%	80.0%
Oats	90.2%	9.4%	70.1%
Alfalfa hay	90.5%	10.9%	50.7%

Alfalfa 9.4#	DM	DP	TDN
	.905	.109	.507
	x9.4	x9.4	x9.4
	8.507	1.024	4.766
Corn 1.5#	.850	.070	.794
	x1.5	x1.5	x1.5
	1.275	.105	1.191
Oats 1.5#	.920	.094	.701
	x1.5	x1.5	x1.5
	1.353	.141	1.051

Example of trial and error method, 400# dairy heifer

Ration too high in protein

	Dry matter	Digestible protein	Total digestible nutrients
	Lbs.	Lbs.	Lbs.
Requirements	9.1-11.4	0.76-0.87	6.0-7.0
Ration			
Alfalfa hay, 9.4 lbs.	8.51	1.02	4.77
Corn, No. 2, 1.5 lbs.	1.28	0.10	1.20
Oats, 1.5 lbs.	1.35	0.14	1.05
Total	11.14	1.26	7.02

Ration too low in protein

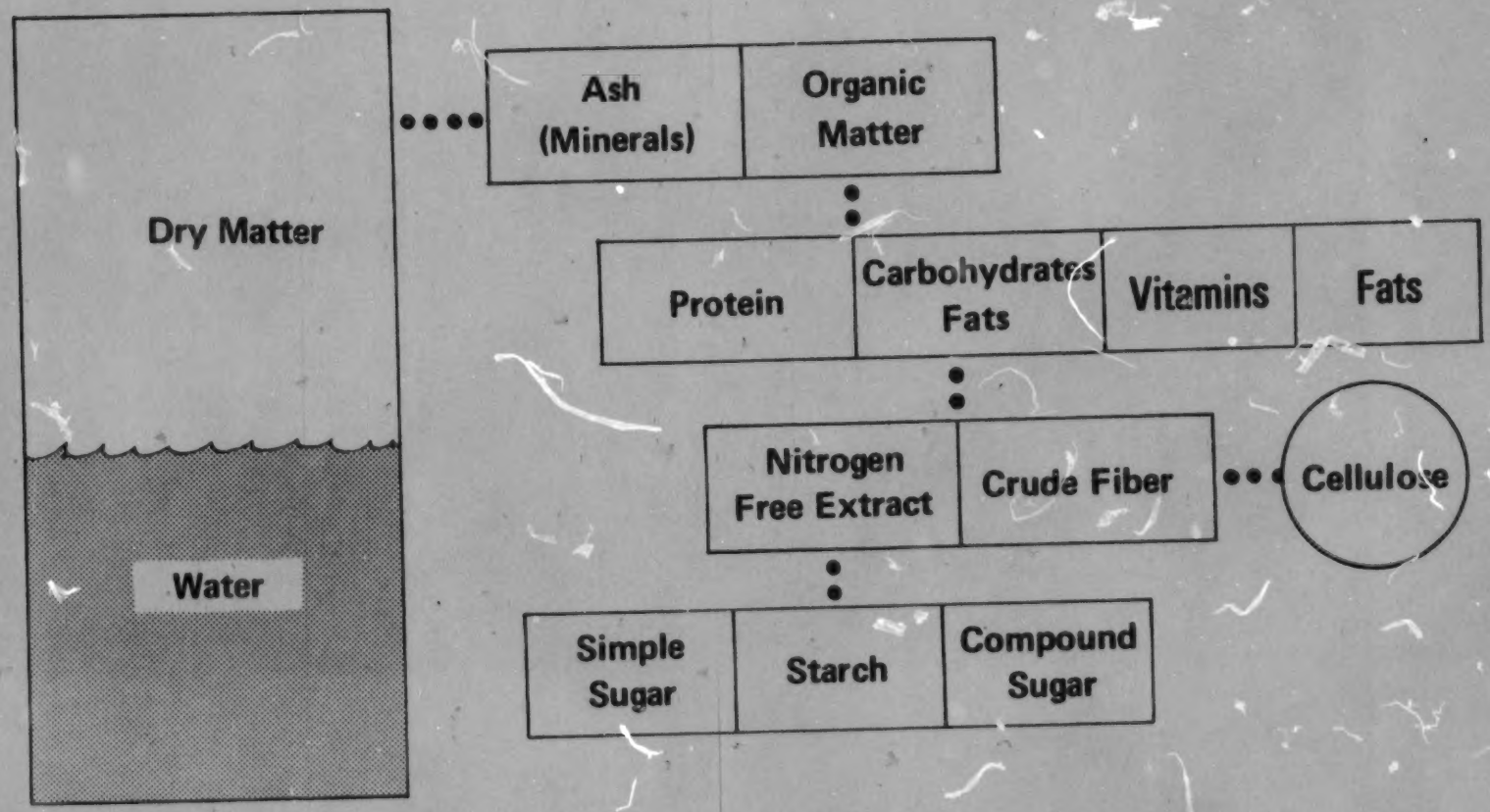
	Dry matter	Digestible protein	Total digestible nutrients
	Lbs.	Lbs.	Lbs.
Requirements	9.1-11.4	0.76-0.87	6.0-7.0
Ration			
Timothy hay, 6.0 lbs.	5.34	0.18	2.95
Corn silage, 10.0 lbs.	2.76	0.12	1.83
Corn, No. 2, 1.5 lbs.	1.28	0.10	1.20
Oats, 1.5 lbs.	1.35	0.14	1.05
Total	10.73	0.54	7.03

INFORMATION SHEET

A balanced ration

	Dry matter	Digestible protein	Total digestible nutrients
	Lbs.	Lbs.	Lbs.
Requirements	9.1-11.4	0.76-0.87	5.0-7.0
Ration			
Timothy hay, 6.0 lbs.	5.34	0.18	2.95
Corn silage, 10.0 lbs.	2.76	0.12	1.83
Corn, No. 2, 0.75 lb.	0.64	0.05	0.60
Oats, 0.75 lb.	0.68	0.07	0.53
Linseed meal, 1.5 lbs.	1.37	0.46	1.13
Total	10.79	0.88	7.04

Feed Composition



TM 1

Classification of Concentrates

OIL MEALS

Soybean
Cottonseed
Linseed
Peanut

MOLASSES

Cane
Beet

GRAIN BY-PRODUCTS

Wheat bran
Wheat standard middlings

ANIMAL PRODUCTS

Meat scraps
Tankage
Fish meal
Dried dairy products

GRAINS

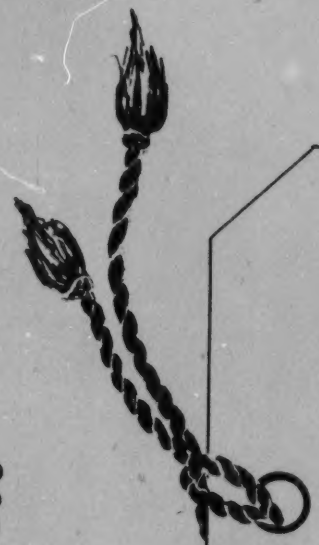
Barley
Wheat
Corn
Milo
Oats

00330

Classification of Roughages

GREEN ROUGHAGES	DRY ROUGHAGES	SILAGE
Roots	Hays– Grass and Legume	Corn
Grasses	Hulls– Peanut and Cottonseed	Sorghum
Tubers	Straw– Oat, Wheat, Barley, and Rice	Grass

Commercial Feed Tag



50 Pounds (Net) B & D BRAND SPECIAL CATTLE CUBES

GUARANTEED ANALYSIS

Crude Protein not less than	20.00 Percent
Crude Fat not less than	2.50 Percent
Crude Fiber not more than	14.00 Percent

INGREDIENTS: Composed of grain products, plant protein products, processed grain by-products, animal protein products, dehydrated alfalfa meal (preserved with ethoxyquin), mixed screenings 10%, rice mill by-products 10%, cane molasses, calcium carbonate, defluorinated phosphate, salt, and TRACES of manganous oxide, zinc oxide, ferrous sulphate, copper sulphate, calcium iodate, and cobalt carbonate. (Total added mineral ingredients less than 5%).

Manufactured by

FEEDING DIRECTIONS: A cattle supplement for winter range.

003332

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ASSIGNMENT SHEET #1--DETERMINING TDN AND DP CONTENT OF BASIC FEEDS

Using Table I of Morrison's *Feeds and Feeding,* calculate the TDN and DP of the following feeds.

1. How many pounds of TDN are there in:

   a. 50 pounds of No. 1 yellow corn

   b. 30 pounds of milo grain

   c. 50 pounds of wheat, average all types

   d. 50 pounds of oats, Pacific Coast states

   e. 20 pounds of alfalfa hay, all analyses

2. How many pounds of DP are there in each of the above pounds of feed?

   a.

   b.

   c.

   d.

   e.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ASSIGNMENT SHEET #2--BALANCING RATIONS USING PEARSON'S SQUARE

Determine the total parts needed in a 16% ration using 8.5% DP milo and 41.0% cottonseed meal. Show your work.

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ASSIGNMENT SHEET #3-WORKING A SAMPLE RATION FOR FATTENING A BEEF ANIMAL

Balance a sample ration for an 800 pound beef fattening animal for DM, TDN, and DP. Use Morrison's *Feeds and Feeding* for reference.

Animal Requirements	DM	DP	TDN

Use the following grains:

Corn, dent, Grade #1

Soybean meal 41%

Cottonseed hulls

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ASSIGNMENT SHEET #4--WORKING A SAMPLE RATION FOR FATTENING SWINE

Balance a sample ration for a 125 pound swine fattening animal for DM, DP, and TDN. Use Morrison's *Feeds and Feeding* for reference.

Animal requirements	DM	DP	TDN
Use the following grains:			
Wheat, average all types			
Corn, dent, Grade #1			
Soybean meal 41%			

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ASSIGNMENT SHEET #5--DETERMINE PROTEIN REQUIREMENTS FOR VARIOUS ANIMALS

From the tables provided in the information sheet, determine the pounds of protein required per day per animal.

Calculation can also be made by using the following formula:

Pounds dry matter or pounds of feed per day per animal x percent of protein of the ration = # of protein per day per animal

Check answers found in the tables by calculating problems 1 and 2. Use only table values on the remainder of the problems.

1. 70# lamb to gain 0.40# per day

2. 140# nonlactating ewe in first 15 weeks of gestation to gain 0.07# per day

3. 500# growing heifer to gain 0.55# per day

4. 600# growing steer to gain 1.10# per day

5. 1200# dry pregnant mature cow to maintain her weight

6. 1800# bull to maintain weight

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. a. 40.9 lbs. TDN
   b. 23.8 lbs. TDN
   c. 40.0 lbs. TDN
   d. 36.1 lbs. TDN
   e. 10.1 lbs. TDN
2. a. 3.45 lbs. DP
   b. 2.55 lbs. DP
   c. 5.55 lbs. DP
   d. 3.50 lbs. DP
   e. 2.18 lbs. DP

Assignment Sheet #2

1. 25.0 parts of milo
   7.5 parts of cottonseed meal
   32.5 total parts

Assignment Sheets #3 and #4--Instructor to supply answers

Assignment Sheet #5

1. Table: .34
   Calculation: 3.1# x 11.0% = .34
2. Table: .27
   Calculation: 3.4# x 8.0% = .27

		DP	Total Protein
3.	Table	.64	1.06
4.	Table	.97	1.56
5.	Table	.49	1.03
6.	Table	1.34	2.21

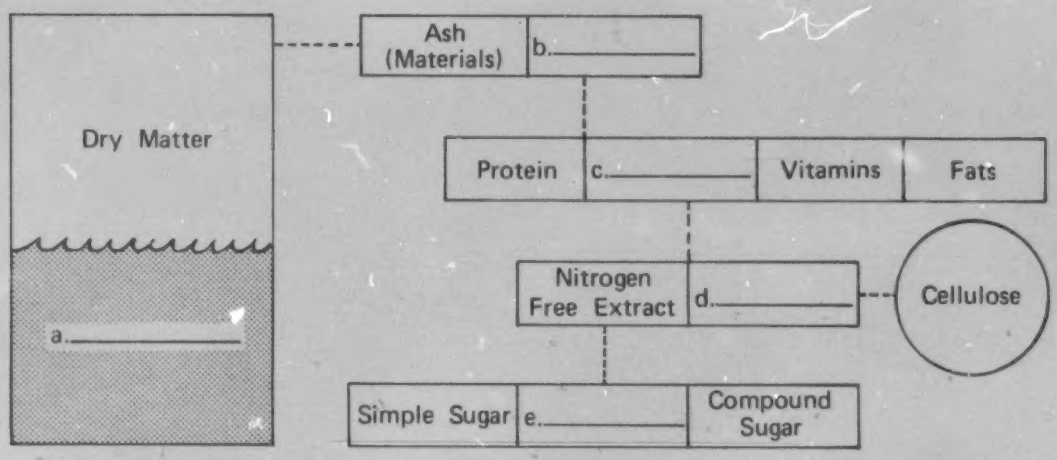
COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

TEST

1. Match the terms on the right to the correct definition.

_____a. Feed that is high in total digestible nutrients and low in fiber	1. Roughage
_____b. Organic compound composed of carbon, hydrogen, and oxygen	2. Concentrate
_____c. Feed from crops cured and stored green or without drying	3. Silage
_____d. That portion of a feed which is digested and used in the animal's body	4. Ration
_____e. Protein or vitamin added to a feed	5. Balanced ration
_____f. Ration which furnishes the several nutrients in such proportion and amount as will properly nourish a given animal for twenty-four hours	6. Fiber
_____g. Feed that is high in fiber or nondigestible material and low in total digestible nutrients	7. Supplement
_____h. Average percentage of dry material in a feed found by weighing the feed, drying by heat, and reweighing	8. Crude protein
_____i. Portion of crude protein which may be digested by the animal	9. Digestible protein
_____j. Feed allowed for a given animal during a day of twenty-four hours	10. Total digestible nutrients (TDN)
_____k. Tough part of a feed; not very digestible	11. Pasturage
_____l. Organic compound consisting of carbon, hydrogen, oxygen, nitrogen, and sulfur	12. Protein
_____m. Plant growth available to animals on the range or in the pasture	13. Fat
_____n. Total amount of protein contained in a feed	14. Dry matter (DM)

2. Complete the following chart showing the composition of a feed.



3. List three methods used to determine value of a feed.

a.

b.

c.

4. Classify the following feeds by placing a "C" in front of the concentrates and an "R" in front of the roughages.

_____a. Grains (corn)

_____b. Hays (alfalfa)

_____c. Grain by-products (wheat bran)

_____d. Molasses (cane)

_____e. Cottonseed hulls

_____f. Wheat straw

_____g. Soybean oil meal

_____h. Meat scraps

5. Select from the list below three requirements that every commercial feed company must state on its feed tag by placing an "X" in the blanks.

_____a. Percentage of corn

_____b. Minimum of crude protein

_____c. Minimum of crude fat

_____d. Minimum of crude fiber

_____e. Maximum of crude protein

_____f. Maximum of crude fiber

6. Classify the following list of sugars by placing a "C" in front of the compound sugars and an "S" in front of the simple sugars.

_____a. Glucose

_____b. Maltose

_____c. Galactose

_____d. Fructose

_____e. Sucrose

_____f. Lactose

7. Describe in a short paragraph the procedure for determining water and dry matter content of a feed.

8. Match the percent of protein required in a ration on the right to the appropriate size of pigs.

_____a. 50 lbs to 125 lbs	1. 20%
_____b. Birth to 15 lbs	2. 16 - 18%
_____c. 15 to 50 lbs	3. 16%
_____d. 125 to 240 lbs	4. 14%

9. Compare the cost per pound of protein for the following feeds.

(Cost per pound ÷ DP = cost per pound of protein.)

	Cost per pound of protein
a. Milo costs $4.50/wt - DP 8.5%	_____
b. Oats cost $6.00/wt - DP 9.4%	_____
c. Which costs more per pound of protein	_____

10. Determine the percentage of DP and TDN in the following feeds by using the table given below.

	% DP	% TDN
a. Corn, dent, Grade #2	_____	_____
b. Oats (not including Pacific Coast states)	_____	_____
c. Alfalfa hay, all analyses	_____	_____

TABLE I. Average composition and digestible nutrients

Feeding stuff	Total dry matter	Dig. protein	Total dig. nutrients	Nutritive ratio	Average total composition: Protein	Fat	Fiber	N-free extract	Mineral matter	No. of anal.
Dry Roughages	Per ct.	Per ct.	Per ct.	1:	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	
Alfalfa hay, all analyses	90.5	10.9	50.7	3.7	15.3	1.9	28.6	36.7	8.0	1,288
Alfalfa hay, very leafy (less than 25% fiber)	90.5	12.8	52.7	3.1	17.5	2.4	22.7	39.5	8.4	219
Alfalfa hay, leafy (25–28% fiber)	90.5	11.7	51.2	3.4	16.0	2.1	27.2	36.8	8.4	294
Alfalfa hay, good (28–31% fiber)	90.5	10.2	50.3	3.9	14.6	1.8	29.6	36.5	8.0	323
Corn, dent, Grade No. 1	87.0	6.9	81.9	10.9	8.9	4.0	2.0	70.8	1.3	
Corn, dent, Grade No. 2	85.0	6.7	80.1	11.0	8.7	3.9	2.0	69.2	1.2	169
Corn, dent, Grade No. 3 *	83.5	6.5	78.6	11.1	8.5	3.8	2.0	68.0	1.2	
Oat mill by-product, high grade *	91.5	7.9	58.8	6.4	10.8	3.9	17.7	53.2	5.9	10
Oat mill by-product, with molasses *	92.4	3.6	37.2	9.3	5.5	1.4	24.1	55.0	6.4	31
Oats, not including Pacific Coast states	90.2	9.4	70.1	6.5	12.0	4.6	11.0	58.6	4.0	498
Oats, Pacific Coast states *	91.2	7.0	72.2	9.3	9.0	5.4	11.0	62.1	3.7	118
Oats, ground, usual commercial feed grade *	89.8	9.0	68.5	6.6	11.6	4.1	12.1	57.7	4.3	419
Oats, light weight	91.2	8.3	59.8	6.2	12.0	4.5	15.1	54.9	4.7	32
Oats, wild	89.0	9.1	53.9	4.9	12.7	5.5	15.2	50.9	4.7	2

11. Balance a ration using Pearson's square method.

			Parts		#/100#
Corn 7.0%		a.	_____	d.	_____
Soybean meal 44%		b.	_____	e.	_____
		c.	_____		100#

12. Balance a ration for digestible protein, dry matter, and total digestible nutrients using the trial and error method.

13. Determine protein requirements for various animals.

(NOTE: If these have not been completed prior to the test, ask the instructor when the above activities should be completed.)

COMPOSITION AND CLASSIFICATION OF FEEDS
UNIT II

ANSWERS TO TEST

1. a. 2 h. 14
   b. 13 i. 9
   c. 3 j. 4
   d. 10 k. 6
   e. 7 l. 12
   f. 5 m. 11
   g. 1 n. 8
2. a. Water
   b. Organic matter
   c. Carbohydrates
   d. Crude fiber
   e. Starch
3. a. Cost per pound of TDN
   b. Cost per pound of protein
   c. Cost per pound of feed
4. a. C e. R
   b. R f. R
   c. C g. C
   d. C h. C
5. b, c, f
6. a. S d. S
   b. C e. C
   c. S f. C

7. Description should include:

   a. Weigh feed

   b. Dry in oven

   c. Weigh again

8. a. 3

   b. 1

   c. 2

   d. 4

9. a. $ .53

   b. $ .64

   c. Oats

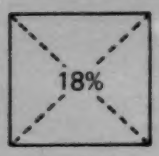
10.

	% DP	% TDN
a.	6.7	81.9
b.	9.4	70.1
c.	10.9	50.7

11.

Corn 7.0%

SBM 44%



	Parts		#/100#
a.	26	d.	70
b.	11	e.	30
c.	37		100#

12. Evaluated to the satisfaction of the instructor.

13. Evaluated to the satisfaction of the instructor.

ANIMAL DIGESTION
UNIT III

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to label the parts of various digestive tracts and classify animals according to types of stomachs. He should also be able to list functions of hormones and describe the chemical and digestive processes. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with animal digestion to the correct definitions.
2. Label drawings showing parts of the digestive tracts of the cow, the pig, and the chicken.
3. State in writing the primary difference between a simple and ruminant animal.
4. Classify animals according to simple stomach and ruminant.
5. List three functions of hormones in the digestive process.
6. Select from a list the digestive processes that take place in the mouth.
7. List five glands that aid in the breakdown of feeds.
8. Describe the chemical and mechanical digestive processes.

ANIMAL DIGESTION
UNIT III

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

(NOTE: If facilities are available, the instructor may want to take the class to a slaughter facility to see digestive tracts of various animals.)

F. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Compound Digestive System of the Cow
2. TM 2--Simple Digestive System of Swine
3. TM 3--Simple Digestive System of the Chicken

D. Test

E. Answers to test

II. References:

A. Cassard, Daniel W., and Elwood M. Juergenson. *Approved Practices in Feeds and Feeding.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

B. Morrison, Frank B. *Feeds and Feeding, Abridged,* 9th ed. Claremont, Ontario, Canada: Morrison Publishing Company, 1961.

C. Henderson, H.O., and Paul M. Reaves. *Dairy Cattle Feeding and Management.* New York: John Wiley and Sons, Inc.

D. Bundy, Clarence E., and Ronald V. Diggins. *Beef Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

E. Bundy, Clarence E., and Ronald V. Diggins. *Livestock and Poultry Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965.

F. *Animal Nutrition.* St. Louis, Missouri: Ralston Purina Company, 1964.

ANIMAL DIGESTION
UNIT III

INFORMATION SHEET

I. Terms and definitions

A. Digestion--Process of breaking down and dissolving feeds so that the body can absorb them

B. Absorption--Passing of food materials from the digestive tube into the body after they are digested and dissolved

C. Enzyme--Mysterious organic compound which brings about changes in other organic compounds without being changed or broken down itself

D. Hormone--Internal body secretion that regulates various body processes

E. Mastication--Grinding or chewing of food to aid in digestion

F. Metabolism--Sum of all physical and chemical changes which take place within an organism

(NOTE: This process includes both material and energy changes.)

G. Excretion--Removal of water and waste material from the body

H. Regurgitation--Process by which food eaten by a ruminant is carried from the second stomach and the rumen into the gullet and then forced up to the mouth for chewing

I. Feces--Manure; undigested material and wastes expelled at the end of the digestive tube

J. Pancreatic juice--Clear, watery fluid with an alkaline reaction secreted by the pancreas; aids in feed breakdown

K. Bile--Thin, yellowish brown or greenish liquid secreted by the liver

L. Ruminant animal--Animal with a four compartment stomach

II. Parts of digestive tracts

A. Cow (Transparency 1)

1. Salivary ducts

2. Pharynx

3. Esophagus

INFORMATION SHEET

4. Rumen
5. Reticulum
6. Omasum
7. Abomasum
8. Small intestine
9. Cecum
10. Colon or large intestine
11. Anus

B. Pig (Transparency 2)

1. Pharynx
2. Esophagus
3. Stomach
4. Small intestine
5. Cecum
6. Large intestine
7. Colon
8. Rectum

C. Chicken (Transparency 3)

1. Esophagus
2. Crop
3. Proventriculus
4. Gizzard
5. Liver
6. Pancreas
7. Duodenum

INFORMATION SHEET

8. Small intestine

9. Cecum

10. Large intestine

11. Rectum

12. Cloaca

13. Vent

III. Primary difference between simple stomach and ruminant--Simple stomach animals have only one compartment stomachs while ruminants have four compartment stomachs

IV. Animal classification according to simple stomach or ruminant

A. Simple stomach

1. Pig

2. Chicken

3. Rabbit

4. Man

5. Dog

6. Horse

B. Ruminant

1. Cow

2. Sheep

3. Goat

V. Functions of hormones

A. Digestion

B. Metabolism

C. Milk secretion

D. Let-down of milk

E. Development of sexual characteristics

INFORMATION SHEET

VI. Digestive processes in the mouth

- A. Chewing or grinding of feed
- B. Secretion of saliva

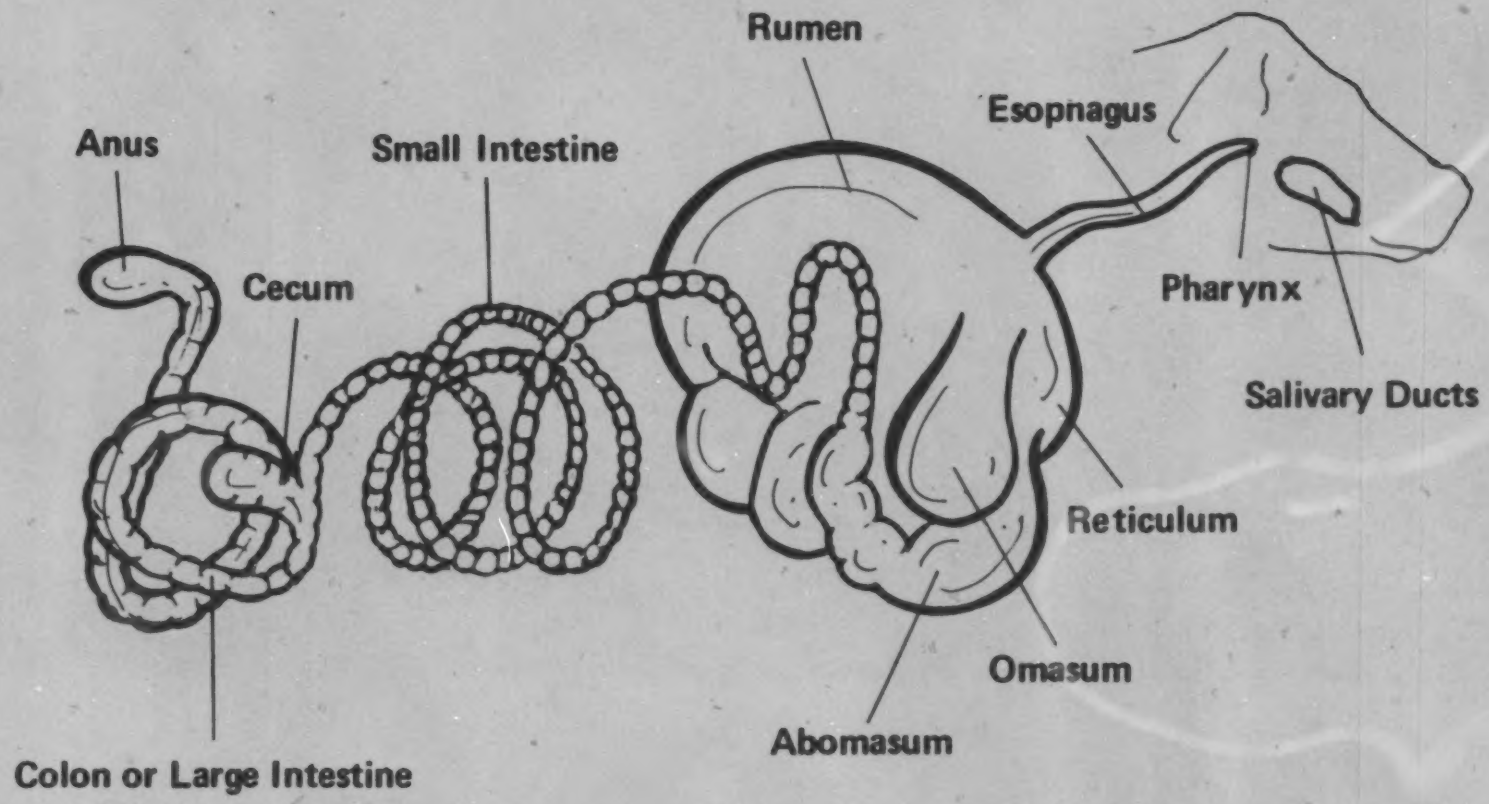
VII. Glands that aid in feed breakdown

- A. Thyroid
- B. Parathyroid
- C. Pituitary
- D. Adrenal
- E. Pancreas
- F. Liver

VIII. Digestive processes

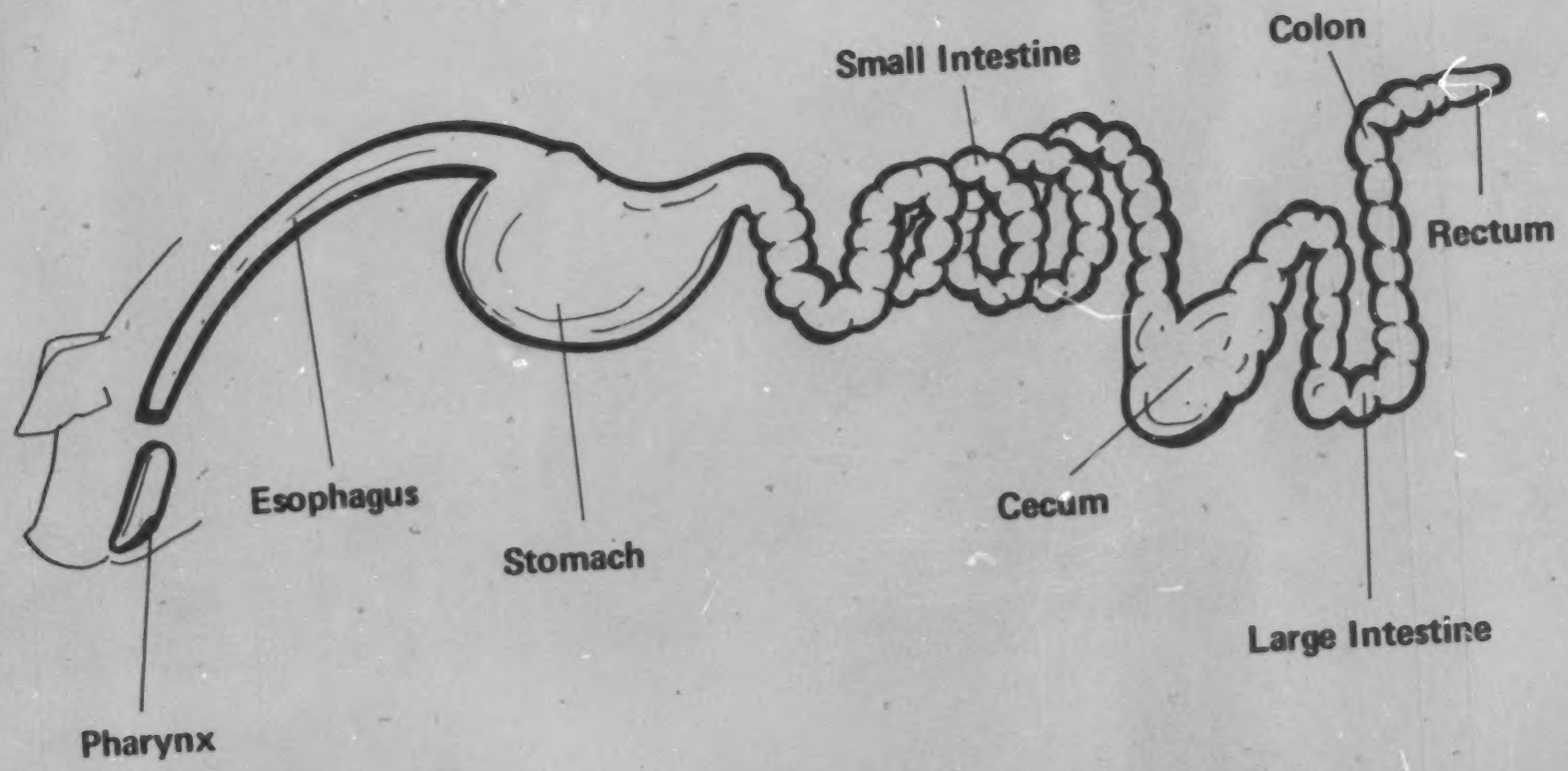
- A. Mechanical
  - 1. Chewing
  - 2. Grinding
- B. Chemical
  - 1. Saliva--Produced in the mouth
  - 2. Juices--Secreted into the stomach and intestines

Compound Digestive System of the Cow



00252

Simple Digestive System of Swine

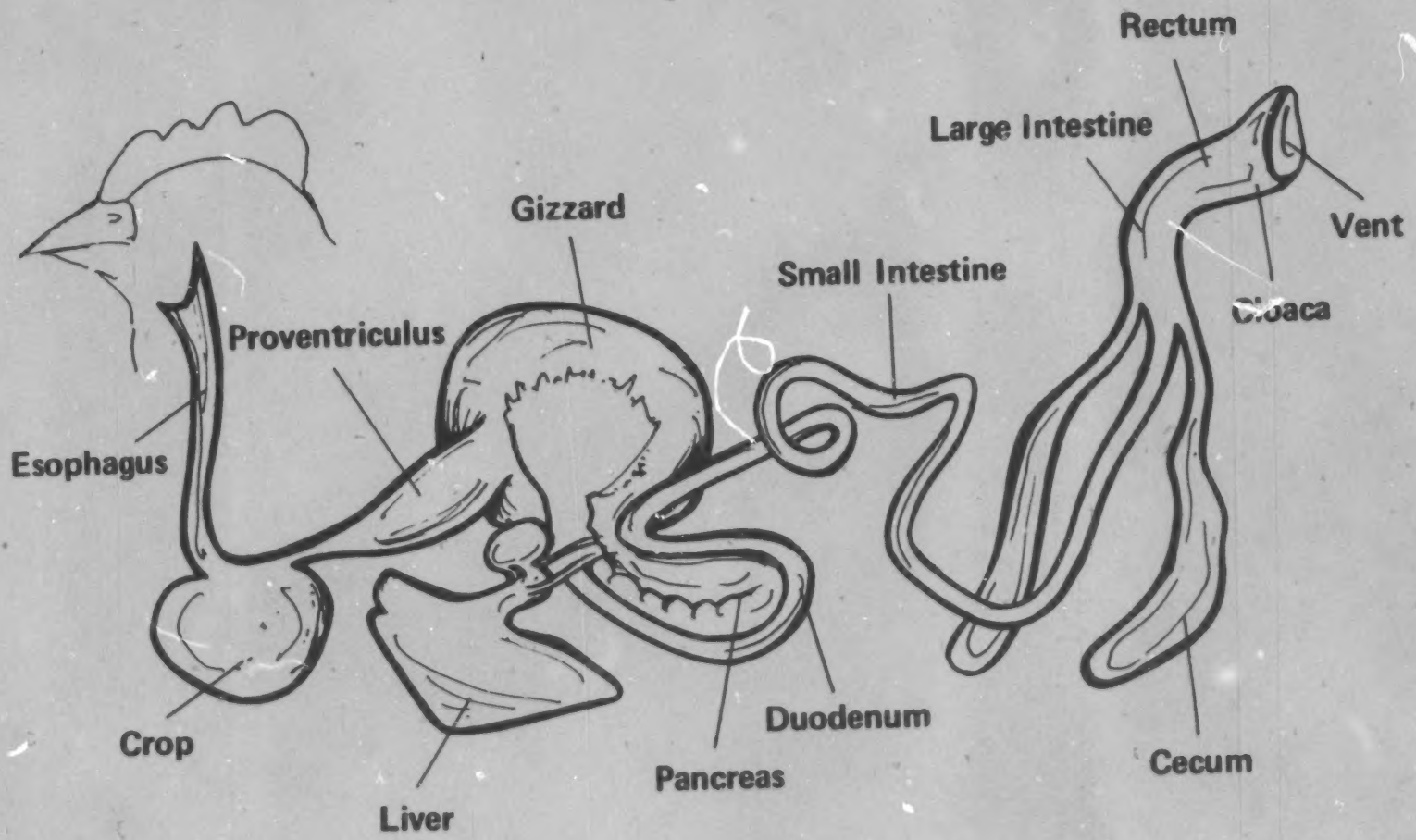


00354

Ag II - 71-E

TM 2

Simple Digestive System of the Chicken



00355

ANIMAL DIGESTION
UNIT III

TEST

1. Match terms on the right to the correct definition.

_____a. Process by which food eaten by ruminant is carried from the second stomach and the rumen into the gullet and then forced up to the mouth for chewing

_____b. Mysterious organic compound which brings about changes in other organic compounds without being changed or broken down itself

_____c. Thin, yellowish brown or greenish liquid secreted by the liver

_____d. Removal of water and waste material from the body

_____e. Animal with a four compartment stomach

_____f. Sum of all physical and chemical changes which take place within an organism

_____g. Grinding or chewing of food to aid in digestion

_____h. Clear, watery fluid with an alkaline reaction secreted by the pancreas; aids in feed breakdown

_____i. Manure; undigested material and wastes expelled at the end of the digestive tube

_____j. Process of breaking down and dissolving feeds so that the body can absorb them

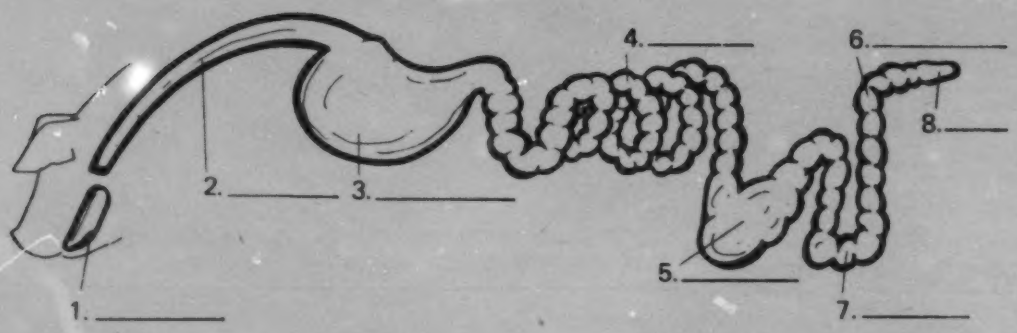
_____k. Passing of food materials from the digestive tube into the body after they are digested and dissolved

_____l. Internal body secretion that regulates various body processes

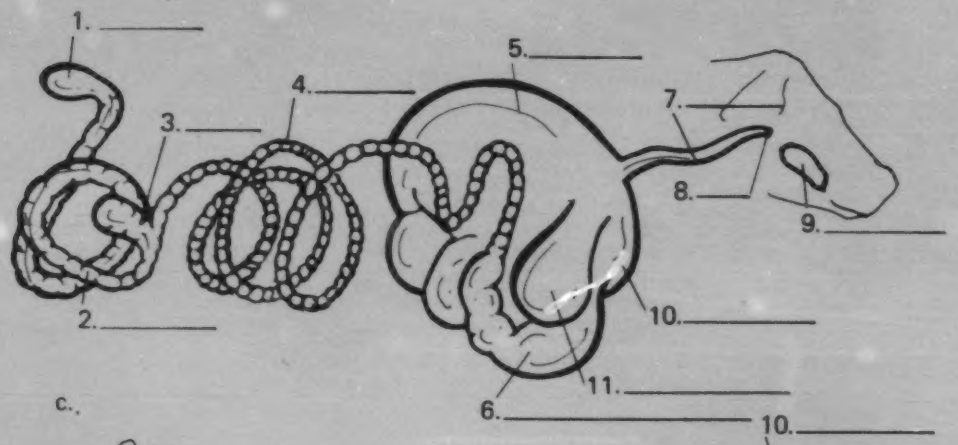
1. Digestion
2. Absorption
3. Enzyme
4. Hormone
5. Mastication
6. Metabolism
7. Excretion
8. Regurgitation
9. Feces
10. Pancreatic juice
11. Bile
12. Ruminant animal

2. Label the following drawings by writing the correct name in the blank.

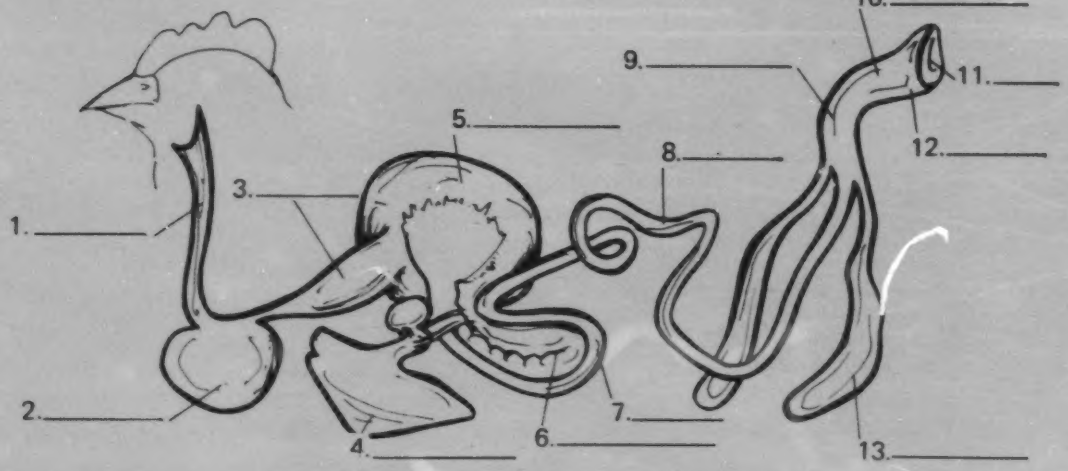
a.



b.



c.



3. State in writing the primary difference between a simple stomach and ruminant animal.

4. Classify the following animals by placing an "S" in the blank for a simple stomach animal and an "R" in the blank for a ruminant animal.

_____a. Horse

_____b. Dog

_____c. Cow

_____d. Pig

_____e. Goat

_____f. Man

_____g. Rabbit

____ h. Sheep

5. List three functions of hormones in the digestive process.

a.

b.

c.

6. Select from the list below the digestive processes that take place in the mouth by placing an "X" in the blank.

_____a. Absorption

_____b. Excretion

_____c. Chewing or grinding of feed

_____d. Metabolism

_____e. Secretion of saliva

7. List five glands that aid in the breakdown of feeds.

a.

b.

c.

d.

e.

8. Describe the chemical and mechanical digestive processes.

ANIMAL DIGESTION
UNIT III

ANSWERS TO TEST

1. a. 8
   b. 3
   c. 11
   d. 7
   e. 12
   f. 6
   g. 5
   h. 10
   i. 9
   j. 1
   k. 2
   l. 4

2. a. Swine
   1) Pharynx
   2) Esophagus
   3) Stomach
   4) Small intestine
   5) Cecum
   6) Colon
   7) Large intestine
   8) Rectum

   b. Cow
   1) Anus
   2) Colon or large intestine
   3) Cecum
   4) Small intestine
   5) Rumen
   6) Abomasum
   7) Esophagus

8) Pharynx

9) Salivary ducts

10) Reticulum

11) Omasum

c. Chicken

1) Esophagus

2) Crop

3) Proventriculus

4) Liver

5) Gizzard

6) Pancreas

7) Duodenum

8) Small intestine

9) Large intestine

10) Rectum

11) Vent

12) Cloaca

13) Cecum

3. Simple stomach animals have only one compartment stomachs while ruminants have four compartment stomachs

4.

a.	S	e.	R
b.	S	f.	S
c.	R	g.	S
d.	S	h.	R

5. Any three of the following:

a. Digestion

b. Metabolism

c. Milk secretion

d. Let-down of milk

e. Development of sexual characteristics

6. c, e

7. Any five of the following:

a. Thyroid

b. Parathyroid

c. Pituitary

d. Adrenal

e. Pancreas

f. Liver

8. Description should include:

a. Mechanical

1. Chewing

2. Grinding

b. Chemical

1. Saliva--Produced in the mouth

2. Juices--Secreted into the stomach and intestines

MAINTAINING ANIMAL HEALTH
UNIT IV

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to determine health of an animal by observation, match temperatures of various animals to the correct animal, and develop an animal health plan for his own situation. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with animal health to the correct definition.
2. Select from a list signs that indicate good animal health.
3. List signs of poor animal health.
4. Match average temperatures to various classes of livestock or poultry.
5. List three factors that constitute a good disinfection program.
6. Identify kinds of injections.
7. Select from a list four agencies that regulate animal health.
8. Develop a plan for maintaining animal health using livestock in his supervised experience program.

MAINTAINING ANIMAL HEALTH
UNIT IV

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objectives.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Demonstrate the proper procedure for vaccinating an animal.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete assignment sheet.

D. Apply a good animal health plan to your livestock program.

E. Vaccinate at least one animal.

F. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency master: TM 1--Injection Points

D. Assignment Sheet #1--Developing an Animal Health Plan

E. Test

F. Answers to test

II. References:

A. Ensminger, M.E. *Animal Science.* Danville, Illinois: The Interstate Printers and Publishers, 1965.

B. *The Stockman's Handbook.* Danville, Illinois: The Interstate Printers and Publishers.

C. Bundy, Clarence E. and Ronald V. Diggins. *Livestock and Poultry Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

D. *Instructional Materials for Vocational Agriculture I.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

MAINTAINING ANIMAL HEALTH
UNIT IV

INFORMATION SHEET

I. Terms and definitions

A. Vaccination--Injection of some agent into an animal for the purpose of preventing a disease

B. Vaccine--Preparation containing live or killed microorganisms that are given to an animal to produce an immunity to a particular disease

C. Disinfectant--Substance which destroys infective agents

D. Antiseptic--Substance that will inhibit the growth of microorganisms without destroying them

E. Injection--Placing of a vaccine or antibiotic into an animal's body

F. Serum--Watery portion of an animal's blood which will stop the action of an infectious agent

G. Syringe--Instrument used to make injections, consisting of a plunger, a barrel, and various types and sizes of needles

II. Signs that indicate good health

A. Contentment

B. Alertness

C. Chewing of cud (ruminants)

D. Sleek coat

E. Bright eyes and pink eye membrane

F. Normal feces and urine

G. Normal temperature

H. Normal pulse rate

I. Normal respiration

III. Signs that indicate poor health

A. Loss of appetite

B. Rough hair coat

INFORMATION SHEET

C. Abnormal feces

D. Dull eyes

E. High temperature

F. Discolored urine

G. Ruminants not chewing their cud

IV. Average temperature of various classes of livestock or poultry

Class of Livestock or Poultry	Degree F Average	Degree F Range
Cattle	101.5	100.4-102.8
Sheep	102.3	100.9-103.8
Goats	103.8	101.7-105.3
Swine	102.6	102.0-103.6
Horses	100.5	99.0-100.8
Poultry	106.0	105.0-107.0

V. Factors that constitute a good disinfection program

A. Cleanliness of area before applying disinfectant

B. Killing strength of disinfectant

C. Dilution at which disinfectant is used

D. Thoroughness of application

VI. Kinds of injections (Transparency 1)

A. Subcutaneous--Injection placed under the skin

B. Intravenous--Injection placed in a vein

(NOTE: This is generally used when fast action is desired.)

C. Intramuscular--Injection placed in the muscle

(NOTE: This injection is generally placed in the thigh or neck.)

D. Oral--Injection placed through the mouth into the stomach

E. Intraperitoneal--Injection placed in the right side of the abdominal cavity

INFORMATION SHEET

F. Udder infusion--Injection placed in the udder

(NOTE: This injection is placed through the teat opening into the udder.)

VII. Agencies that regulate animal health

A. Animal disease eradication division

B. State veterinarians

C. State sanitary commissions

D. State agricultural boards

VIII. Factors to consider when developing an animal health plan

A. Proper housing

B. Adequate ventilation

C. Proper manure disposal

D. Control of rodents and birds

E. Use of disinfectants

F. Proper carcass disposal

G. Proper isolation of new animals

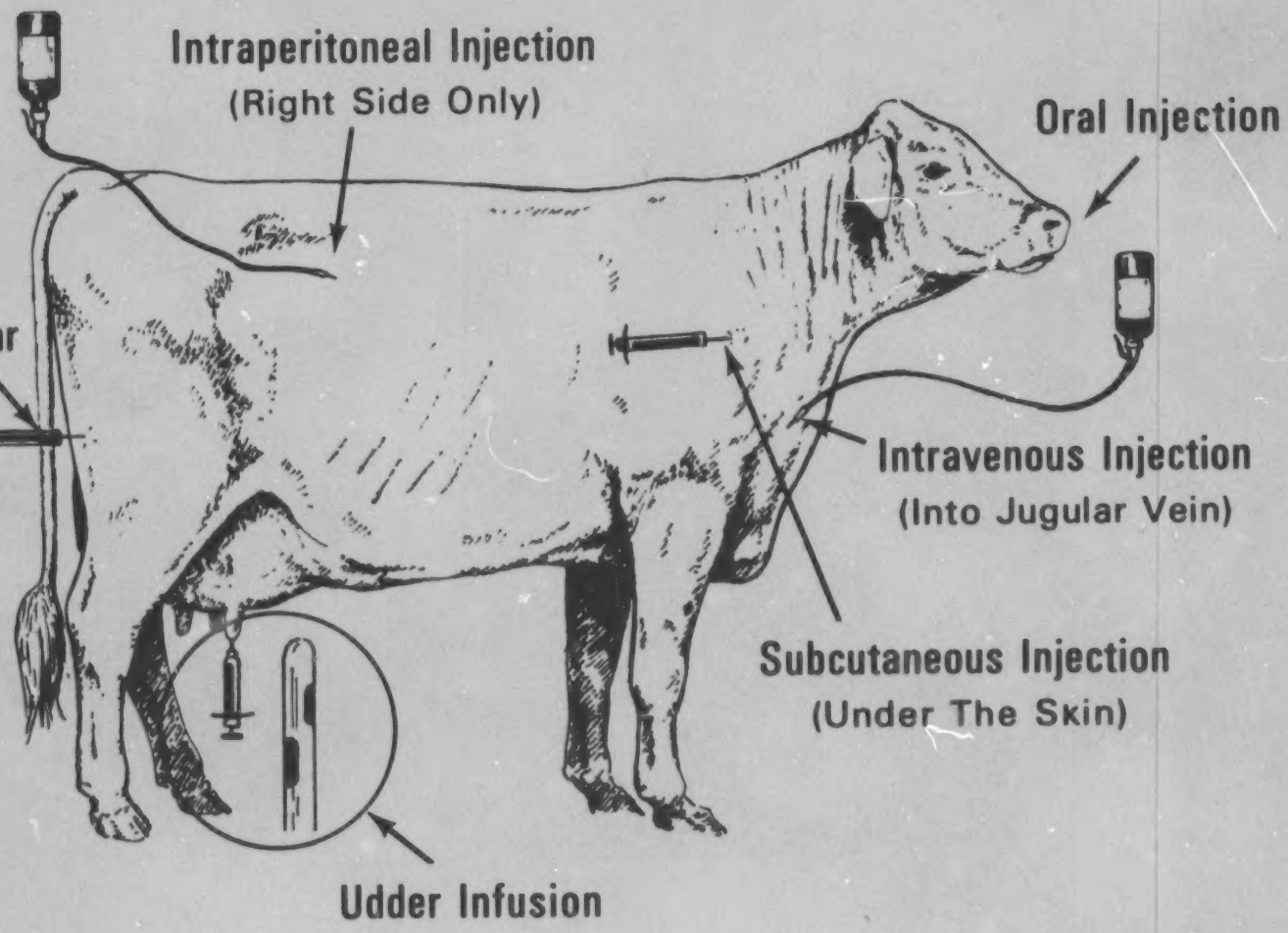
H. Pasture rotation

I. Vaccination

J. Parasite control

(NOTE: Others may be added by instructor.)

Injection Points



00369

MAINTAINING ANIMAL HEALTH
UNIT IV

ASSIGNMENT SHEET #1--DEVELOPING AN ANIMAL HEALTH PLAN

Using livestock in your supervised experience program, develop a plan for maintaining animal health. Factors on the information sheet may be used as a guide. Complete and turn in to the instructor for evaluation.

MAINTAINING ANIMAL HEALTH
UNIT IV

TEST

1. Match terms on the right to the correct definition.

_____a. Substance that will inhibit the growth of microorganisms without destroying them	1. Syringe
_____b. Watery portion of an animal's blood which will stop the action of an infectious agent	2. Serum
_____c. Injection of some agent into an animal for the purpose of preventing a disease	3. Injection
_____d. Placing of a vaccine or antibiotic into an animal's body	4. Antiseptic
_____e. Substance which destroys infective agents	5. Disinfectant
_____f. Instrument used to make injections, consisting of a plunger, a barrel, and various types and sizes of needles	6. Vaccine
_____g. Preparation containing live or killed microorganisms that are given to an animal to produce an immunity to a particular disease	7. Vaccination

2. Select from the list signs that indicate good animal health by placing an "X" in the blanks.

_____a. Contentment

_____b. Loss of appetite

_____c. Alertness

_____d. Sleek coat

_____e. Bright eyes and pink eye membrane

_____f. Fast respiration

_____g. Chewing of cud (ruminants)

3. List three signs that indicate poor animal health.

a.

b.

c.

4. Match the average temperature on the right to the correct class of livestock or poultry.

_____	a. Poultry	1.	102.6
_____	b. Horses	2.	100.5
_____	c. Swine	3.	106.0
_____	d. Goats	4.	101.5
_____	e. Sheep	5.	102.3
_____	f. Cattle	6.	103.8

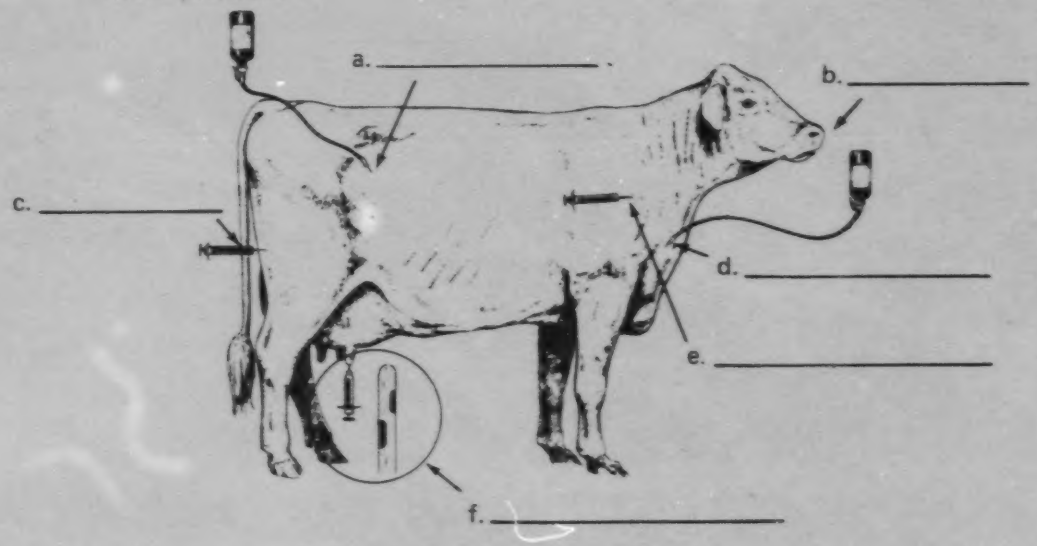
5. List three factors that constitute a good disinfection program.

a.

b.

c.

6. Identify the following kinds of injections by writing the correct name in the blank provided.



7. Select from the list below agencies that regulate animal health by placing an "X" in the blanks.

_____a. Cattlemen's association

_____b. Animal disease eradication division

_____c. Federal government

_____d. State veterinarians

_____e. State sanitary commissions

_____f. State agricultural boards

_____g. State universities

8. Develop a plan for maintaining animal health using livestock in your supervised experience program.

(NOTE: If this activity has not been accomplished prior to test, ask the instructor when it should be completed.)

MAINTAINING ANIMAL HEALTH
UNIT IV

ANSWERS TO TEST

1. a. 4 e. 5
   b. 2 f. 1
   c. 7 g. 6
   d. 3
2. a, c, d, e, g
3. Any three of the following:
   a. Loss of appetite
   b. Rough hair coat
   c. Abnormal feces
   d. Dull eyes
   e. High temperature
   f. Discolored urine
   g. Ruminants not chewing their cud
4. a. 3 d. 6
   b. 2 e. 5
   c. 1 f. 4
5. Any three of the following:
   a. Cleanliness of area before applying disinfectant
   b. Killing strength of disinfectant
   c. Dilution at which disinfectant is used
   d. Thoroughness of application
6. a. Intraperitoneal
   b. Oral

c. Intramuscular

d. Intravenous

e. Subcutaneous

f. Udder infusion

7. b, d, e, f

8. Evaluated to satisfaction of the instructor.

LIVESTOCK DISEASES
UNIT V

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to classify diseases as infectious, noninfectious, or nutritional; list ways brucellosis and cholera are spread; and name the disease when given the symptom, species affected, and treatment and control. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with livestock diseases to the correct definition.
2. Classify diseases as infectious, noninfectious, or nutritional.
3. List steps of a brucellosis eradication program.
4. Select from a list ways cattle may become infected with brucellosis.
5. List ways swine cholera may be spread.
6. Select from a list items that will help in the control of swine cholera.
7. Complete a chart by naming the disease when given the species affected, symptoms, and treatment and control.

LIVESTOCK DISEASES
UNIT V

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Discuss terminal and specific objectives.

D. Discuss information sheet.

E. Give test.

II. Student:

A. Read objective sheet.

B. Study information sheet.

C. Apply information to your supervised experience program.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Test

D. Answers to test

II. References:

A. *Instructional Materials for Vocational Agriculture I.* College Station, Texas: Teaching Materials Center, Agricultural Education Department, Texas A&M University.

B. Diggins, Ronald V., and Clarence E. Bundy. *Beef Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1965.

C. Bundy, Clarence E., and Ronald V. Diggins. *Swine Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1963.

D. Bundy, Clarence E., and Ronald V. Diggins. *Dairy Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1969.

E. Ensminger, M.E. *Animal Science.* Danville, Illinois: The Interstate Printers and Publishers, Inc., 1967.

F. Snapp, R.R. *Beef Cattle.* New York: John Wiley and Sons, Inc., 1969.

G. Dykstra, R.R. *Animal Sanitation and Disease Control.* Danville, Illinois: The Interstate Printers and Publishers.

H. Nichols, C.W. and W.E. Brock. "How to Use Anaplasmosis Vaccine." *OSU Extension Facts, #3352.* Stillwater: Oklahoma State University, 1973.

LIVESTOCK DISEASES
UNIT V

INFORMATION SHEET

I. Terms and definitions

A. Disease--Any departure from the normal state of the living animal that affects the performance of the vital functions

B. Pathogen--Disease-producing organism

C. Infection--Entry and development of a pathogen in or on the animal body

D. Infectious disease--Disease of man or animal resulting from an infection

E. Metabolic derangement--Unbalance of the vital organs in the animal body

F. Noninfectious disease--Disease of man or animal not due to an infection but resulting from physical or chemical agents or metabolic derangement

G. Incidence of disease--Number of cases of a disease occurring during a prescribed time interval

H. Prevalance of disease--Total number of cases of a disease at a particular time

I. Symptom--Any observable sign or evidence of disease

J. Incubation period--Period of time between the exposure to a disease agent and the appearance of the first symptom or sign of the disease

K. Carrier of disease--Animal which harbors in its body the specific organism of a disease without showing symptoms

L. Vehicle of disease--Medium by which a disease agent may be spread

M. Fetus--Unborn offspring of an animal in the later stages of development

N. Abortion--Expulsion of a dead or immature fetus

II. Disease classification

A. Infectious

1. Brucellosis (Bang's)

2. Leptospirosis

3. Vibriosis

INFORMATION SHEET

4. Trichomoniasis
5. Vaginitis
6. Blackleg
7. Anaplasmosis
8. Foot rot
9. Scours
10. Pink eye
11. Erysipelas
12. Cholera
13. Swine influenza
14. Shipping fever
15. Pneumonia
16. Mastitis
17. Warts
18. Red nose
19. Tuberculosis
20. Atrophic rhinitis
21. Transmissible gastroenteritis (TGE)

B. Noninfectious diseases

1. Bloat
2. Prussic acid
3. Milk fever
4. Cancer eye

INFORMATION SHEET

C. Nutritional

1. Anemia
2. Founder
3. Rickets
4. Ketosis

III. Steps of a brucellosis eradication program

A. Test all cows and heifers

B. Remove all reactors from herd

C. Calfhood vaccinate all replacement heifers

D. Retest at regular intervals

E. Isolate all new animals purchased

F. Test all new animals before placing in herd

IV. Ways cattle may become infected with brucellosis

A. Purchased animals may be infected

B. Contact with infected animals over fence lines

C. Exposure at livestock shows

D. Livestock trucks and trailers

E. Public livestock auctions

F. Aborted calves not disposed of properly

V. Ways swine cholera may be spread

A. Feed contaminated with urine

B. Secretions from mouth or sores

C. Drinking unclean water

D. Feeding raw garbage

INFORMATION SHEET

VI. Items that will help control swine cholera

A. Cook raw garbage before feeding

B. Prohibit the use of live hog cholera virus

C. Report all cases of hog cholera

(NOTE: This is a mandatory procedure introduced by the State Department of Agriculture. The disposal of carcasses is supervised by officials of the State Department of Agriculture.)

D. Dispose of infected animals properly

E. Clean and disinfect facilities

F. Conform to interstate and intrastate controls on movement of swine

VII. Diseases

(NOTE: Refer to charts on the following pages.)

INFORMATION SHEET

VII. Diseases

DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT AND CONTROL
Brucellosis	Cattle, sheep, swine, and man	Abortion; retained placenta; repeat breeders	Slaughter infected animals; calfhood vaccinate
Leptospirosis	Cattle, sheep, swine, and man	Abortion; loss of appetite; feverish; heavy breathing; bloody urine; calves may be born, but are weak and death may occur	Perform blood test; vaccinate all animals; isolate new animals
Vibriosis	Cattle and sheep	Abortion; low conception; temporary infertility	No treatment available; use antibiotics; sexual rest
Trichomoniasis	Cattle	Abortion; low conception; repeat breeding; inflammation of uterus	Sexual rest cows for 3 months after abortion; market infected bulls
Vaginitis	Cattle	Tissue of vagina reddish, roughened, and granular in appearance	Use artificial insemination; purchase clean animals
Blackleg and Malignant edema	Cattle; less frequently sheep	Sudden sickness or death; high fever; lameness; swelling of muscles; crackling sound may be heard when areas are touched	Burn or bury carcasses; vaccinate sheep 2-4 weeks before shearing, castrating, and docking; vaccinate all calves
Anaplasmosis	Cattle; sheep to lesser extent	Animals become weak and lag behind herd; skin becomes pale around eyes, on the muzzle, lips, and teats, and then turns yellow	Vaccinate all animals in winter months; keep animals from brushy areas; control flies, ticks, and mosquitoes; may cause neonatal anemia; will not control an outbreak
Foot rot	Cattle and sheep	Lameness; reddening and swelling of skin above hoof between toes	Move animal to dry quarters; trim inflamed foot and wash with warm soapy water; sulfa drugs and antibiotics are effective in treating

00383

INFORMATION SHEET

DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT AND CONTROL
Cancer eye	Cattle	A small tumor on eyelid or eyeball; irritation around eye	Early diagnosis followed by surgery; slaughter
Pink eye	Cattle and sheep	Watering and squinting of eyelid; severe reddening of membrane	Isolate affected animals; use antibiotics for control
Milk fever	Cattle, sheep, and swine	Occurs one to two days before or soon after giving birth; loss of appetite; constipation; nervousness; head usually turned back	Keep good supply of vitamins and minerals available; treat with an injection of calcium glucose intravenously
Erysipelas	Swine	Purple patches under belly; stiff, swollen knees and hocks	Isolate all sick animals; clean and disinfect pens; vaccinate once or twice a year; use antibiotics for control
Cholera	Swine	Sudden onset; fever; loss of appetite; weakness; drinking considerable water; belly may be purplish red color; coughing is often evident	Isolate new animals coming into the herd; do not feed uncooked garbage
Swine influenza	Swine	Loss of appetite; become distressed; difficult breathing; discharge from eyes; cough is deep and loud; high fever for a few days	Provide warm, clean, well-ventilated quarters and ample supply of fresh water; use antibiotics
Shipping fever	Cattle, sheep, and swine	High fever; discharge from eyes; hacking cough; difficult breathing; sometimes swelling in region of neck	Provide good feeding and management; vaccinate three weeks before stressing cattle

00084

INFORMATION SHEET

DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT AND CONTROL
Pneumonia	Cattle, sheep, and swine	High fever; quick, shallow breathing; loss of appetite; crackling noise with breathing; discharge from nostrils	Isolate sick animals; practice good, sound husbandry; use sulfa drugs and antibiotics
Mastitis	Cattle, sheep, and swine	Acute: udder becomes hot, very hard, and tender; increase in temperature; milk flow reduced and watery Chronic: milk thick or lumpy Sheep: discharge from teats or gangrene (blue bag)	Eliminate source of udder injury; provide clean bedding; use antibiotics
Warts	Cattle	Growths on the skin varying from very small to large, appearing around teats and head	Isolate cattle; clean and disinfect pens; vaccinate cattle to remove warts
Bloat	Cattle and sheep	Enlarged paunch noticeable on the left side	Keep animals on feet and moving; use stomach pump; feed dry hay before turning in to green, lush pasture
Prussic acid	Cattle	Staggered walking; animals will go down quickly	Keep cattle from grazing frost- or drought-damaged Johnson grass or Sudan grass; prompt treatment will result using nitrate boluses
Anemia	Cattle, sheep, and swine	Loss of appetite; slow and inefficient gains; death	Provide adequate amounts of nutrients; vaccinate suckling pigs
Founder	Cattle, horses, and sheep	Extreme pain; high fever; dropping of hoof soles; turning up of toe walls	Avoid overfeeding of the animal; severe cases should be destroyed; vaccinate early affected animals
Rickets	Cattle, sheep, and swine	Enlargement of the knee and hock joints; bowed legs	Provide sufficient calcium, phosphorous, and vitamin D

INFORMATION SHEET

DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT AND CONTROL
Red nose	Cattle	Cough; loss of appetite; loss of weight; nasal discharge; rapid breathing; high fever	Vaccine available; practice good sanitation
Ketosis	Cattle and sheep	Cows: Loss of weight and appetite; decline in milk production Sheep: Weakness; frequent urination; trembles when exercised; death usually occurs in 90% of the cases	Glucose injection; feed well-balanced ration; add molasses ration
Transmissible gastroenteritis	Swine	Scouring and vomiting; disease spreads rapidly	No effective treatment available; practice good sanitation; move farrowing grounds
Tuberculosis	Cattle, sheep, and swine	Very few symptoms; coughing; labored breathing	Practice good sanitation; test and slaughter reactor animals
Atrophic rhinitis	Swine	Starts with baby pigs; show signs of sneezing; snout twisted or distorted	Select replacements from clean herd; slaughter infected animals; SP 250 in feed.

00086

LIVESTOCK DISEASES
UNIT V

TEST

1. Match terms on the right to the correct definition.

_____a. Entry and development of a pathogen in or on the animal body	1. Disease
_____b. Any departure from the normal state of the living animal that affects the performance of the vital functions	2. Fetus
_____c. Total number of cases of a disease at a particular time	3. Pathogen
_____d. Disease of man or animal resulting from an infection	4. Abortion
_____e. Unborn offspring of an animal in the later stages of development	5. Infectious disease
_____f. Expulsion of a dead or immature fetus	6. Vehicle of disease
_____g. Number of cases of a disease occurring during a prescribed time interval	7. Infection
_____h. Disease of man or animal not due to an infection but resulting from physical or chemical agents or metabolic derangement	8. Carrier of disease
_____i. Period of time between the exposure to a disease agent and the appearance of the first symptom or sign of the disease	9. Metabolic derangement
_____j. Animal which harbors in its body the specific organism of a disease without showing symptoms	10. Incubation period
_____k. Unbalance of the vital organs in the animal body	11. Noninfectious disease
_____l. Disease-producing organism	12. Symptom
_____m. Medium by which a disease agent may be spread	13. Incidence of disease
_____n. Any observable sign or evidence of disease	14. Prevalance of disease

2. Classify the following diseases as infectious, noninfectious, or nutritional by placing an "I" in front of infectious, an "NI" in front of noninfectious, and an "N" in front of nutritional diseases.

_____a. Pink eye	_____i. Anemia
_____b. Bloat	_____j. Cholera
_____c. Vaginitis	_____k. Shipping fever
_____d. Milk fever	_____l. Founder
_____e. Anaplasmosis	_____m. Rickets
_____f. Cancer eye	_____n. Atrophic rhinitis
_____g. Brucellosis	_____o. Ketosis
_____h. Prussic acid	_____p. Transmissible gastroenteritis

3. List six steps of a brucellosis eradication program.

a.

b.

c.

d.

e.

f.

4. Select from the list below ways cattle may become infected with brucellosis by placing an "X" in the blanks.

_____a. Contact with infected animals over fence lines

_____b. Eating feed low in minerals

_____c. Exposure at livestock shows

_____d. Exposure to weather

_____e. Aborted calves not disposed of properly

5. List four ways swine cholera may be spread.

a.

b.

c.

d.

6. Select from the list below items that will help in the control of swine cholera by placing an "X" in the blanks.

   _____a. Cook raw garbage before feeding

   _____b. Report all cases of hog cholera

   _____c. Dispose of infected animals properly

   _____d. Clean and disinfect facilities

7. Complete the chart by putting the name of the disease in the block.

	DISEASE	SPECIES AFFECTED	SYMPTOMS	TREATMENT AND CONTROL
a.		Cattle, sheep, swine, and man	Abortion; retained placenta; repeat breeders	Slaughter infected animals; calfhood vaccinate
b.		Swine	Sudden onset of fever; loss of appetite; weakness; belly may be purplish red color; coughing	Isolate new animals; do not feed uncooked garbage
c.		Cattle and sheep	Weakness; lagging behind herd; skin becomes pale around eyes, muzzle, lips, and teats, then turns yellow	Vaccinate all animals during winter months; keep animals from brushy areas; control flies, ticks, and mosquitoes; may cause neonatal anemia; will not control an outbreak
d.		Cattle, sheep, and swine	High fever; quick shallow breathing; loss of appetite; crackling noise with breathing; discharge from nostrils	Isolate sick animals; practice good sound husbandry; use sulfa drugs and antibiotics
e.		Swine	Purple patches under belly; knees and hocks swollen and stiff	Isolate all sick animals; clean and disinfect pens; vaccinate once or twice a year; use antibiotics for control
f.		Cattle and sheep	Watering and squinting of eyelids; severe reddening of the membrane	Isolate affected animals; use of antibiotics helps in control

00389

LIVESTOCK DISEASES
UNIT V

ANSWERS TO TEST

1.	a.	7	h.	11
	b.	1	i.	10
	c.	14	j.	8
	d.	5	k.	9
	e.	2	l.	3
	f.	4	m.	6
	g.	13	n.	12
2.	a.	I	i.	N
	b.	NI	j.	I
	c.	I	k.	I
	d.	NI	l.	N
	e.	I	m.	N
	f.	NI	n.	I
	g.	I	o.	N
	h.	NI	p.	I

3. a. Test all cows and heifers
   b. Remove all reactors from herd
   c. Calfhood vaccinate all replacement heifers
   d. Retest at regular intervals
   e. Isolate all new animals purchased
   f. Test all new animals before placing in herd
4. a, c, e
5. a. Feed contaminated with urine
   b. Secretions from mouth or sores

c. Drinking unclean water

d. Feeding raw garbage

6. a, b, c, d

7. a. Brucellosis

b. Cholera

c. Anaplasmosis

d. Pneumonia

e. Erysipelas

f. Pink eye

LIVESTOCK PARASITES
UNIT VI

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to classify parasites as internal or external. He should also be able to reproduce the life cycle of parasites and name the parasite when given the animal affected, symptom, and prevention and control. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with livestock parasites to the correct definitions.
2. List general measures in preventing internal and external parasites.
3. Classify parasites as internal or external.
4. Reproduce the steps in the life cycle of an internal parasite and an external parasite.
5. Identify external parasites when given a drawing.
6. Complete a chart by naming the parasite when given the species affected, symptoms, and prevention and control.

LIVESTOCK DISEASES
UNIT VI

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information sheet.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Emphasize the major parasites found in your community.

(NOTE: There are several good films on parasites that are available from Oklahoma State University or various chemical companies that would be helpful in creating motivation.)

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Life Cycle of the Horn Fly
2. TM 2--Life Cycle of the Cattle Grub
3. TM 3--Life Cycle of the Swine Intestinal Roundworm
4. TM 4--External Parasites

D. Test

E. Answers to test

II. References:

A. Wagnon, Kenneth A., Reuben Albaugh, and George H. Hart. *Beef Cattle Production.* New York: The Macmillan Company.

B. Bundy, Clarence E., and Ronald V. Diggins. *Swine Production.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

C. Ensminger, M.E. *The Stockman's Handbook.* Danville, Illinois: The Interstate Printers and Publishers, Inc.

D. Flora, Newton W. "Beef Cattle Parasite Control." *OSU Extension Facts.* Stillwater: Oklahoma State University, 1969.

LIVESTOCK PARASITES
UNIT VI

INFORMATION SHEET

I. Terms and definitions

A. Parasite--Organism that lives in or on another animal and obtains its food from its host

B. Life cycle--Series of changes through which an organism passes during its life

C. Metamorphosis--Change in the form or structure of an animal occurring after birth or hatching

D. External parasite--Organism that lives on or under the skin of an animal

E. Internal parasite--Organism that lives part of its life cycle inside the animal body

F. Blowfly--Fly that breeds in necrotic (dead) animal flesh

G. Screwworm fly--Fly that raises its maggots in the open wound of animals and feeds on live flesh

H. Horn fly--Small black fly often seen resting around the base of the horn; sucks blood from the back, neck, and shoulders

I. Grub--Maggot (larva) stage of a honeybee-like insect known as a heel fly

J. Ringworm--Contagious fungus growth on the outer layer of the skin

K. Lice--Small, flattened, wingless parasite

L. Anaplasmosis--Serious blood disease of cattle caused by insect bites

M. Horsefly--Large gray fly generally found around bushy or wooded areas; known to transmit anaplasmosis to cattle

N. Coccidiosis--Parasitic disease caused by protozoan organisms known as coccidia

O. Intestinal worm--Long worm found in the stomach, small intestine, and colon

P. Lungworm--White threadlike worm 1 1/2 to 3 inches long found in the trachea and bronchi of cattle

Q. Ascarid--Yellowish or pinkish worm 8 to 15 inches long; almost the size of a lead pencil

R. Tick--Blood-feeding parasite known to transmit some disease-bearing organism from one animal to another

INFORMATION SHEET

II. Measures for preventing internal and external parasites

A. Internal

1. Practice pasture rotation
2. Check animals regularly
3. Treat animals showing signs of parasites
4. Practice proper lot sanitation
5. Drain wet pasture sites
6. Graze young animals on clean pastures

B. External

1. Keep manure cleaned from barnyards to prevent fly breeding
2. Spray livestock regularly
3. Spray livestock housing
4. Control grubs before they damage the hide
5. Spray new animals arriving on the farm
6. Check livestock frequently

III. Internal and external parasites

A. Internal

1. Coccidiosis
2. Intestinal worm
3. Lungworm
4. Ascarid
5. Liver fluke
6. Stomach worm
7. Tapeworm

INFORMATION SHEET

B. External

1. Blowfly
2. Horn fly
3. Screwworm fly
4. Grub (heel fly)
5. Horsefly
6. Tick
7. Lice
8. Ringworm
9. Mite

IV. Life cycle of parasites

A. Horn fly (Transparency 1)

1. Egg
2. Larva
3. Adult

B. Cattle grub or heel fly (Transparency 2)

1. Adult lays eggs
2. Larva enters body
3. Larva drops to ground
4. Adult emerges

C. Swine intestinal roundworm (Transparency 3)

1. Egg eaten by swine
2. Egg hatches to worm
3. Adult worm in small intestine
4. Eggs are passed in feces

INFORMATION SHEET

V. External parasites (Transparency 4)

A. Mite

B. Lice

C. Tick

D. Horn fly

E. Barn fly

F. Heel fly

G. Screwworm fly

VI. Parasites

(NOTE: Refer to the charts on the following pages.)

INFORMATION SHEET

VI. Parasites

A. External	Species Affected	Symptoms	Preventions and Controls
Blowfly	Cattle, sheep, and swine	Infected wounds; soiled hair or fleece; animals become weak and fevered	Use proper procedure for destroying dead animals. Use traps, poisoned baits, and repellents.
Horn fly	Cattle	Cattle refuse to graze; seek protection by hiding in buildings, brush, or tall grass	Remove manure from around barn. Spray animals frequently from early May until frost. Use Methoychlor, Toxaphene, Malathion, Ronnel, Co-Ral.
Screwworm fly	Cattle, sheep, and swine	Loss of appetite and poor condition	Branding, dehorning, and castrating during winter months. Keep property free of trash and report all cases to proper authority. Kill larva stage. Use EQ 335 and Co-Ral.
Heel fly	Cattle	Grub (larva) in back of cattle from December to May; swelling in backs of animals	Control flies between June and October. Use Co-Ral; do not use after October 15.
Horsefly	Cattle and horses	Irritation, restlessness, and loss of condition; causes anaplasmosis in cattle	No spray is available, but frequent spraying helps from May until frost. Keep animals from heavy brush areas. Use Pyrethrins.
Tick	Cattle, sheep, and swine	May cause anaplasmosis; weak, weight loss, ears droop	Spray or dust frequently. Use Lindane, Toxaphene, and Malathion.
Lice	Cattle, sheep, and swine	Irritation, restlessness, and loss of condition; some lice cause animals to become anemic	Spray frequently from October until spring. Use Toxaphene, Co-Ral, and Malathion.
Ringworm	Cattle, sheep, swine, and man	Round, scaly areas around eyes, ears, and neck	Isolate affected animals, disinfect equipment, and practice strict sanitation. Apply iodine solution.
Mites and Scabies	Cattle, sheep, and swine	Skin irritated; itching and scratching	Spraying and dipping. Use Lindane, lime-sultur.

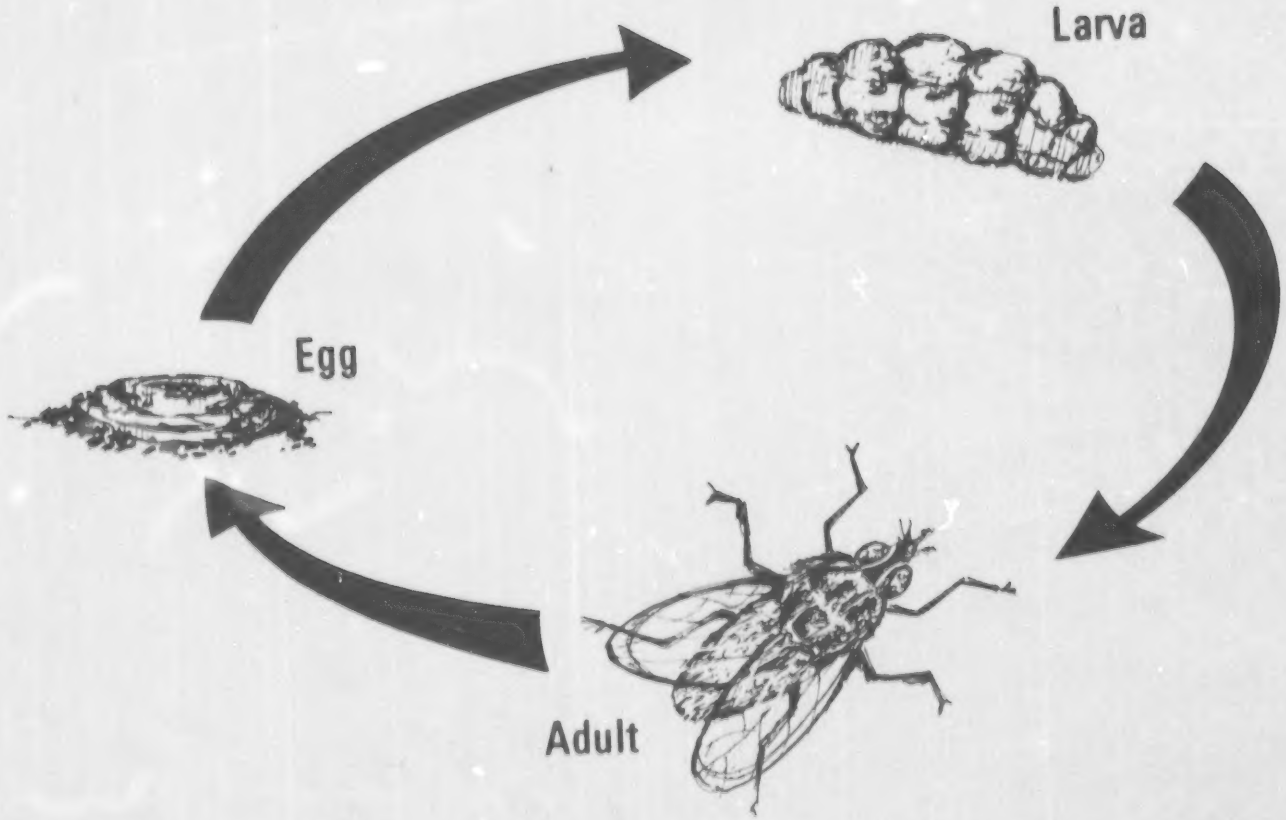
00399

INFORMATION SHEET

B. Internal	Species Affected	Symptoms	Preventions and Controls
Coccidiosis	Cattle, sheep, and swine	Diarrhea, bloody feces, and weakness	Avoid contaminated feed and water, isolate affected animals, and keep feeders and waterers sanitary. Consult veterinarian. Use sulfa drugs.
Intestinal worm	Cattle, sheep, and swine	Loss of weight, poor rate of gain, anemia, and/or diarrhea	Rotate pastures, isolate calves and lambs from adult animals, and keep feeders and waterers sanitary. Use Phenothiazine or Thibenzole.
Lungworm	Cattle, sheep, and swine	Coughing, labored breathing, and loss of appetite; young animals become stunted and unthrifty	Practice good sanitation. Do not spread infested manure on pasture. Use Dictycide.
Ascarid	Swine	Coughing and hard breathing; young pigs become unthrifty and stunted; liver damage	Clean farrowing quarters. Wash sows before farrowing; place sows and pigs on clean pasture after farrowing. Use Piperazine, sodium, and fluoride.
Liver fluke	Cattle and sheep	Anemia, digestive disturbances, loss of weight	Avoid wet pastures. Use a good drench of Hexachlorethane-Bentonite mixture.
Stomach worm	Sheep	No specific symptoms	Pasture rotation. Drench with Phenothiazine.
Tapeworm	Cattle, sheep, and swine	No specific symptoms	Pasture rotation. Use copper sulfate-nicotine sulfate.

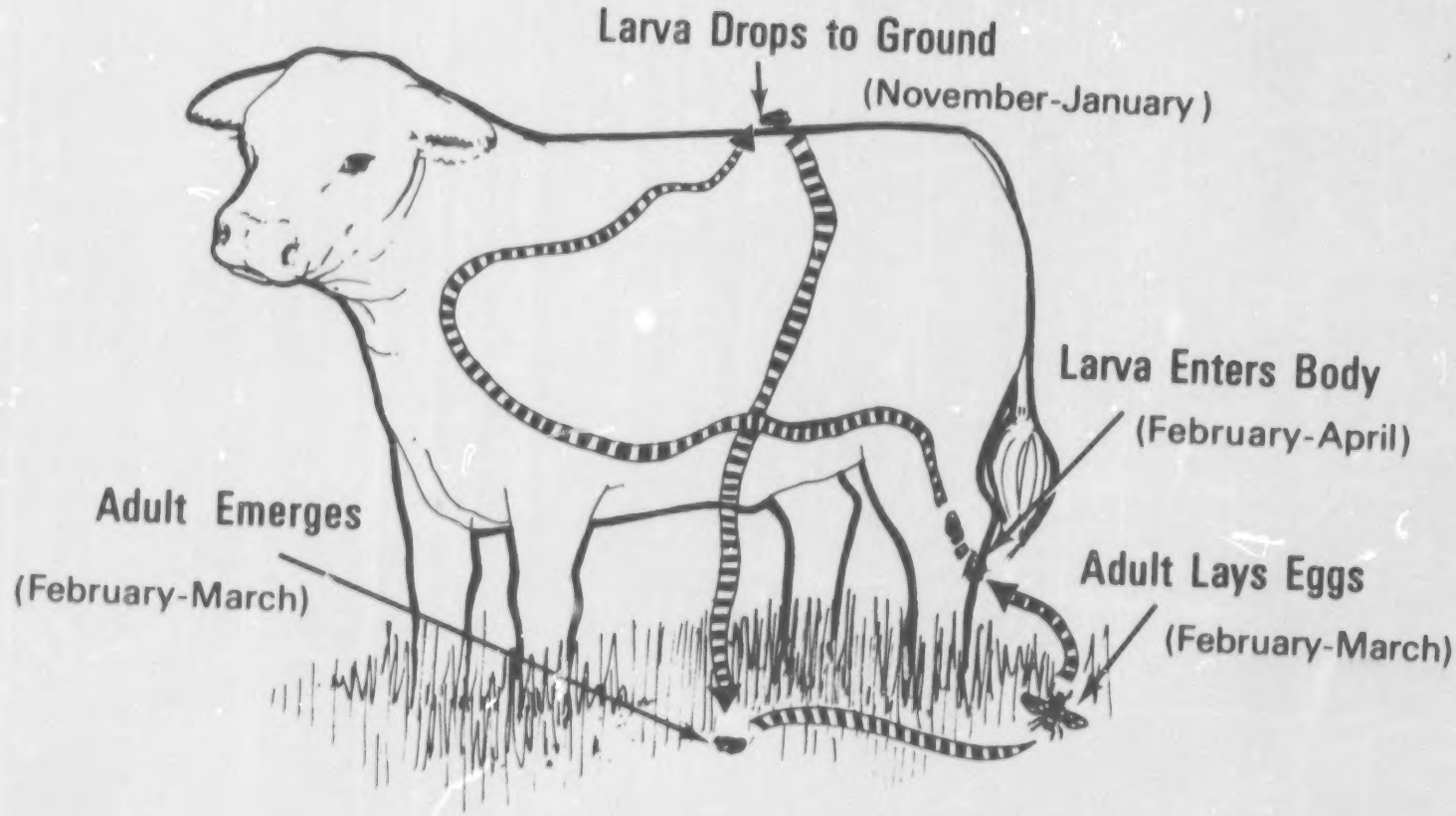
00300

Life Cycle of the Horn Fly

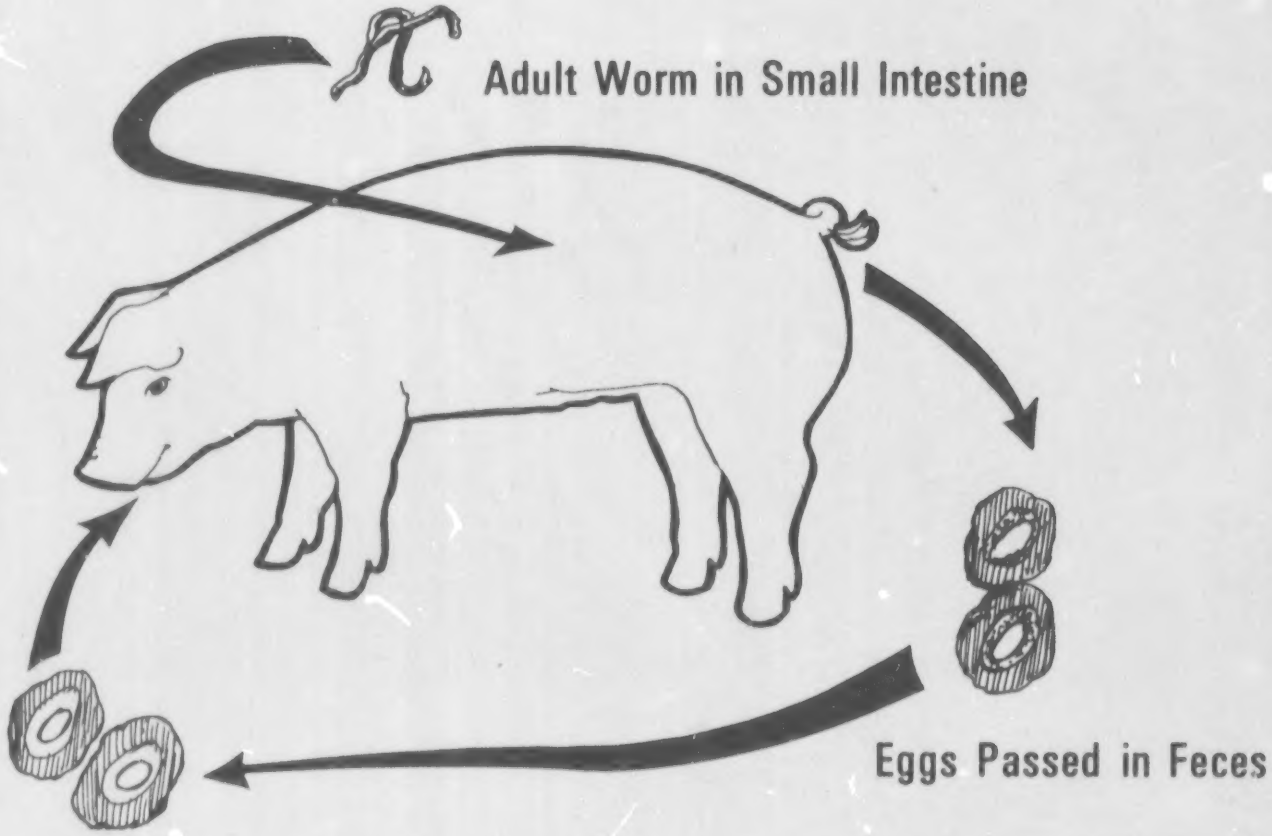


004401

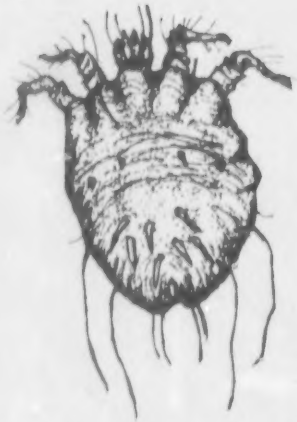
Life Cycle of the Cattle Grub



Life Cycle of the Swine Intestinal Roundworm

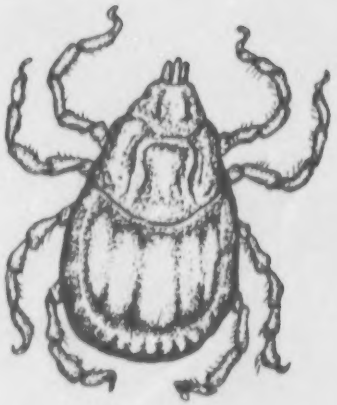


External Parasites



Mite

Lice



Tick

Horn Fly

Barn Fly

Heel Fly

Screwworm Fly

LIVESTOCK PARASITES
UNIT VI

TEST

1. Match the terms on the right to the correct definition.

_____a. Blood-feeding parasite known to transmit some disease-bearing organism from one animal to another	1. Tick
_____b. Parasitic disease caused by protozoan organisms known as coccidia	2. Ascarid
_____c. Small, flattened, wingless parasite	3. Lungworm
_____d. Organism that lives part of its life cycle inside the animal body	4. Intestinal worm
_____e. Organism that lives in or on another animal and obtains its food from its host	5. Coccidiosis
_____f. Long worm found in the stomach, small intestine, and colon	6. Horsefly
_____g. Maggot (larva) stage of a honeybee-like insect known as a heel fly	7. Ringworm
_____h. Fly that breeds in necrotic (dead) animal flesh	8. Grub
_____i. Series of changes through which an organism passes during its life	9. Lice
_____j. Organism that lives on or under the skin of an animal	10. Horn fly
_____k. Small black fly often seen resting around the base of the horn; sucks blood from the back, neck, and shoulders	11. Screwworm fly
_____l. Large gray fly generally found around bushy or wooded areas; known to transmit anaplasmosis to cattle	12. Blowfly
_____m. Yellowish or pinkish worm 8 to 15 inches long; almost the size of a lead pencil	13. Internal parasite
	14. External parasite
	15. Metamorphosis
	16. Life cycle
	17. Parasite
	18. Anaplasmosis

_____n. White threadlike worm 1 1/2 to 3 inches long found in the trachea and bronchi of cattle

_____o. Contagious fungus growth on the outer layer of the skin

_____p. Fly that raises its maggots in the open wound of animals and feeds on live flesh

_____q. Change in the form or structure of an animal occurring after birth or hatching

_____r. Serious blood disease of cattle caused by insect bites

2. List three general measures to be used in preventing internal and external parasites.

a. Internal

1)

2)

3)

b. External

1)

2)

3)

3. Classify internal and external parasites by placing an "E" in front of the external and an "I" in front of the internal.

_____a. Horn fly

_____b. Coccidiosis

_____c. Blowfly

_____d. Horsefly

_____e. Grub (heel fly)

_____f. Lungworm

_____g. Lice

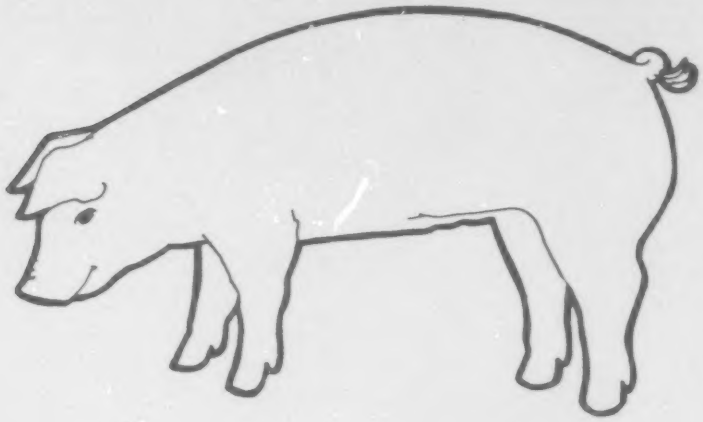
_____h. Tick

_____i. Intestinal worm

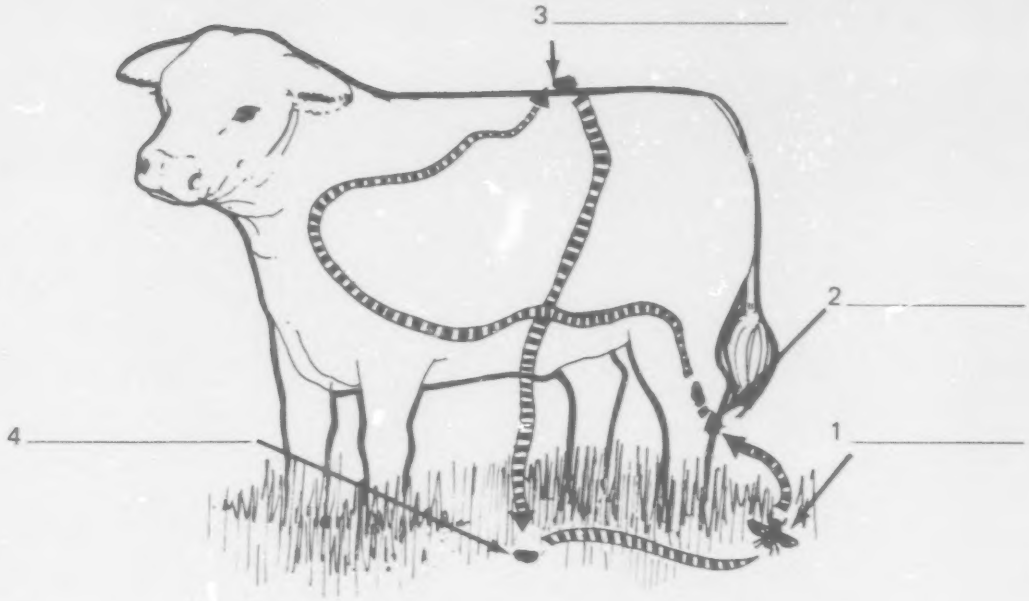
_____j. Screwworm fly

4. Reproduce the steps in the life cycle of an internal parasite and an external parasite.

   a. Draw the life cycle of the swine intestinal roundworm.

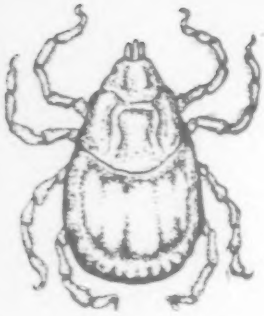


   b. Label the drawing below showing the life cycle of the cattle grub or heel fly.



5. Identify the following external parasites by writing the correct name in the blank provided.

a. _____ b. _____ c. _____



d. _____ e. _____ f. _____

g. _____

6. Complete the chart below by naming the parasite when given species affected, symptoms, and prevention and control.

Parasite	Species Affected	Symptoms	Prevention and Control
a.	Cattle, sheep, and swine	Weak, weight loss, ears droop	Spray and dust frequently.
b.	Cattle, sheep, and swine	Coughing, labored breathing, loss of appetite	Good sanitation. Do not spread infested manure on pasture.
c.	Cattle	Swelling on back of animal	Control flies between June and October.
d.	Cattle and horses	Irritation, restlessness, loss of condition; causes anaplasmosis in cattle	No spray available.
e.	Cattle, sheep, and swine	Irritation, restlessness, loss of condition	Spray frequently from October until spring.

LIVESTOCK PARASITES
UNIT VI

ANSWERS TO TEST

1.

a.	1	j.	14
b.	5	k.	10
c.	9	l.	6
d.	13	m.	2
e.	17	n.	3
f.	4	o.	7
g.	8	p.	11
h.	12	q.	15
i.	16	r.	18

2. Any three from each group:

   a. Internal

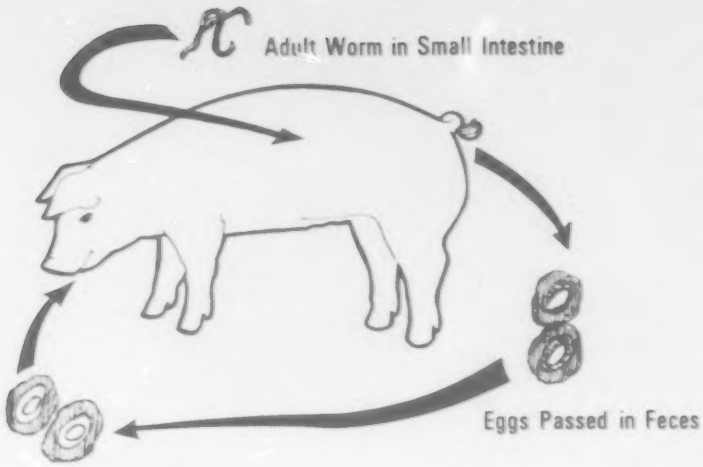
      1) Practice pasture rotation
      2) Check animals regularly
      3) Treat animals showing signs of parasites
      4) Practice proper lot sanitation
      5) Drain wet pasture sites
      6) Graze young animals on clean pastures

   b. External

      1) Keep manure cleaned from barnyards to prevent fly breeding
      2) Spray livestock regularly
      3) Spray livestock housing
      4) Control grubs before they damage the hide
      5) Spray new animals arriving on the farm
      6) Check livestock frequently

3. a. E
   b. I
   c. E
   d. E
   e. E
   f. I
   g. E
   h. E
   i. I
   j. E

4.



   b. 1) Adult lays eggs
      2) Larva enters body
      3) Larva drops to ground
      4) Adult emerges

5. a. Lice
   b. Mite
   c. Screwworm fly
   d. Tick
   e. Heel fly
   f. Horn fly
   g. Barn fly

6. a. Tick
   b. Lungworm
   c. Heel fly
   d. Horsefly
   e. Lice

DRAWING AND SKETCHING
UNIT I

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to interpret drawings of simple plans. He should also be able to identify parts of a drawing, symbols used for welding, and abbreviations used on a drawing. He should be able to complete a simple drawing of a project to be made in the shop. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with drawing and sketching to the correct definitions.
2. State in writing the purpose of a sketch or drawing.
3. Identify the three major views of a pictorial drawing.
4. Select from a list three basic elements of a drawing.
5. Match the basic types of dimensions to their uses.
6. Identify basic lines used on a drawing.
7. Match drawing abbreviations with their corresponding identification.
8. Identify basic welding symbols used on a drawing.
9. Read and interpret a drawing.
10. Draw a simple three-view sketch of a rectangular block 6" long, 2" thick, and 4" wide.
11. Complete a drawing of a simple project to construct in the shop.

DRAWING AND SKETCHING
UNIT I

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objectives.

B. Provide student with information and assignment sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Provide the students with necessary equipment and opportunity to make a simple drawing or sketch.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Obtain drawing paper and necessary equipment to make simple drawing or sketch.

D. Complete assignment sheets.

E. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Converting a Pictorial View into a Three-Sided View

2. TM 2--Types of Dimensions on a Drawing

3. TM 3--Basic Lines Used in Drawing and Sketching

4. TM 4--Use of Lines on a Drawing

5. TM 5--Basic Welding Symbols

D. Assignment sheets

1. Assignment Sheet #1--Read and Interpret a Drawing

2. Assignment Sheet #2--Draw a Three-View Sketch

3. Assignment Sheet #3--Draw a Simple Project

E. Answers to assignment sheets

F. Test

G. Answers to test

II. References:

A. Bennett, A.E., and Louis J. Siy. *Blueprint Reading for Welders.* Albany, New York: Delmar Publishers, Inc., 1968.

B. Sacks, Raymond. *Theory and Practice of Arc Welding.* New York: Van Nostrand Reinhold Company.

C. *How to Read Shop Drawings.* Cleveland, Ohio: The Lincoln Electric Company.

D. Little, Richard L. *Welding and Welding Technology.* New York: McGraw-Hill Book Company, 1973.

E. Walker, John R. *Exploring Drafting.* South Holland, Illinois: Goodheart-Willcox Company, 1972.

F. Phipps, Lloyd. *Mechanics in Agriculture.* Danville, Illinois: The Interstate Printers and Publishers, 1967.

DRAWING AND SKETCHING
UNIT I

INFORMATION SHEET

I. Terms and definitions

A. Drawing--Written message conveyed from the draftsman to the workman containing technical information

B. Sketch--Rough drawing representing the chief features of an object or scene

(NOTE: A sketch is usually made without the aid of drafting instruments.)

C. Blueprint--Photographic print in white on a bright blue ground used especially for copying maps, mechanical drawing and architects' plans

D. Dimension--Process of illustrating the size of various objects

E. Scale--Proportion between two sets of dimensions as between those of a drawing and its original

F. Pictorial view--Illustration showing three or more sides of an object

G. Size dimension--Notes and dimensions that tell the size of an object

H. Shape dimension--Views that illustrate the shape of an object

II. Purpose of a sketch or drawing--To express an idea or an object on paper so that it may be understood by other persons involved

III. Major views of a pictorial drawing (Transparency 1)

A. Top

B. Front or side

C. End

IV. Basic elements of a drawing

A. Lines--Shape and dimensioning of the object

B. Dimensions--Size and location of various segments of items being constructed

C. Notes--Details of construction not shown by lines

INFORMATION SHEET

V. Types of dimensions (Transparency 2)

A. Overall--Describes a total distance, such as the complete length, width, or thickness of an object

B. Size--Gives information concerning the size of an object

C. Location--Gives information concerning the location of some details of construction, such as a hole

VI. Basic lines used on a drawing (Transparencies 3 and 4)

A. Border line--Serves as a frame for a drawing

B. Object line--Indicates the outline of an object

C. Hidden line--Broken line that represents an edge that cannot be seen from the outside of the object

D. Extension line--Indicates the exact distance the dimension describes

E. Dimension line--Extends between the extension lines to indicate distance

F. Center line--Used to locate the center of a circle or a curved surface

G. Leader line--Shows the detail described by a dimension or note

H. Cutting plane line--Used to show the shape of complicated parts

I. Break line--Used to show interior detail

VII. Common abbreviations used on drawings

C. I. = Cast iron

C. C. = Center to center

C. Bore = Counterbore

C. R. S. = Cold rolled steel

C. S. = Cast steel

Csk. = Countersink

Dia. = Diameter

F or Fin = Finish

F. A. O. = Finish all over

F. S. = Full size

F. S. D. = Full size detail

Hex = Hexagon

I. D. = Inside diameter

N. C. = National coarse

N. F. = National fine

No. or # = Number

O. C. = On center

O. D. = Outside diameter

INFORMATION SHEET

R. or Rad = Radius

Req'd = Required

S. A. E. = Society of Automotive Engineers

Sq. = Square

U. S. S. = United States Standard

N. T. S. = Not to scale

Cir = Circular

Cyl = Cylinder

Deg or ° = Degree(s)

Ga = Gauge

GI = Galvanized iron

I = I beam

In. or " = Inch(es)

Mal I = Malleable iron

Std = Standard

Stl = Steel

Stl C = Steel casting

Thd or Thds = Thread(s)

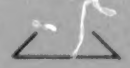
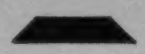
WI = Wrought iron

Br# = Brass, SAE#

Bro# = Bronze, SAE#

Chfr = Chamfer

VIII. Basic welding symbols used on a drawing (Transparency 5)

Weld Type	Symbol
A. Fillet	
B. Plug or slot	
C. Arc seam, arc spot	
D. Butt or square groove	
E. V	
F. Bevel	
G. U	

INFORMATION SHEET

H. J

I. Flare V

J. Flare Bevel

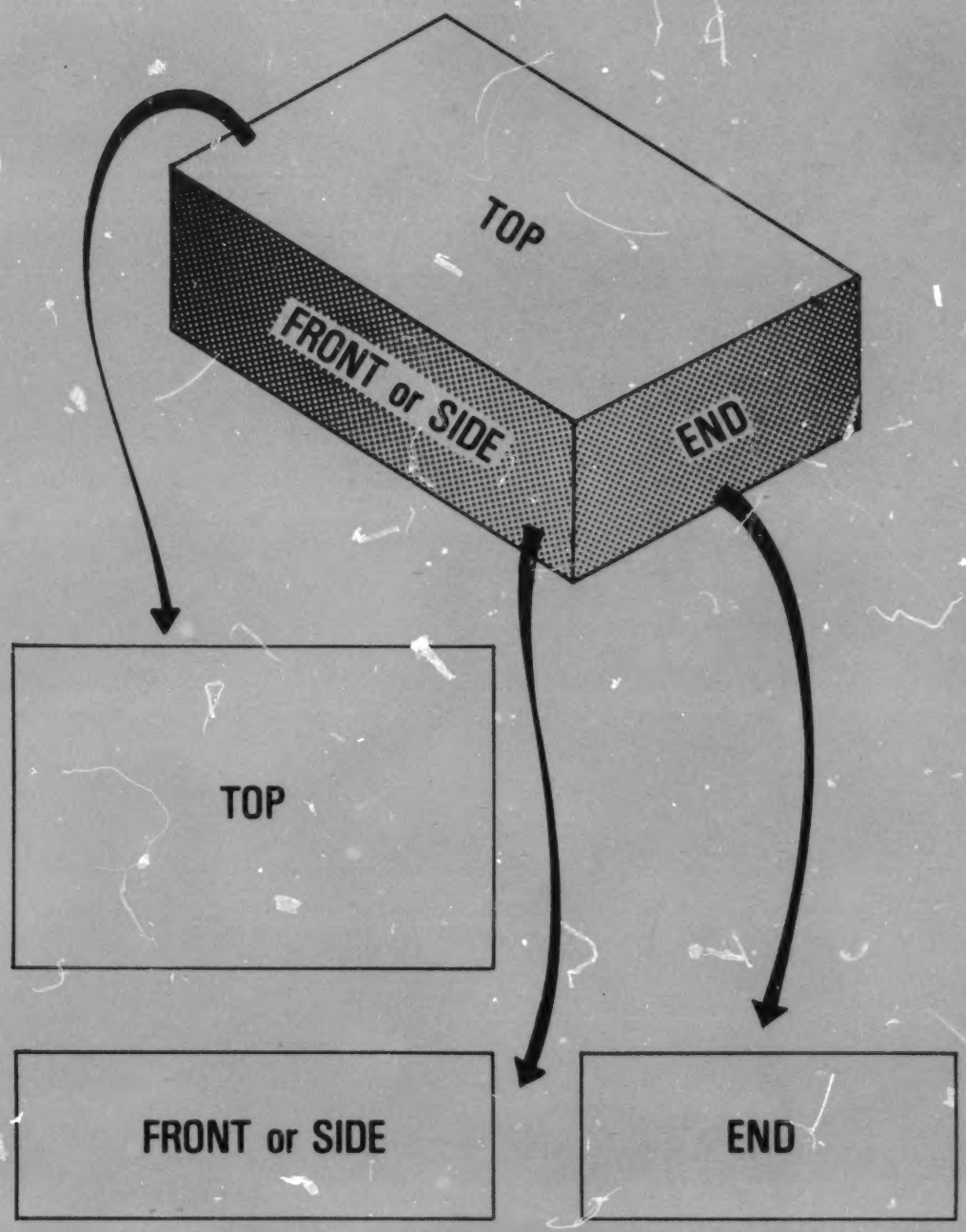
K. Weld all around

L. Field weld

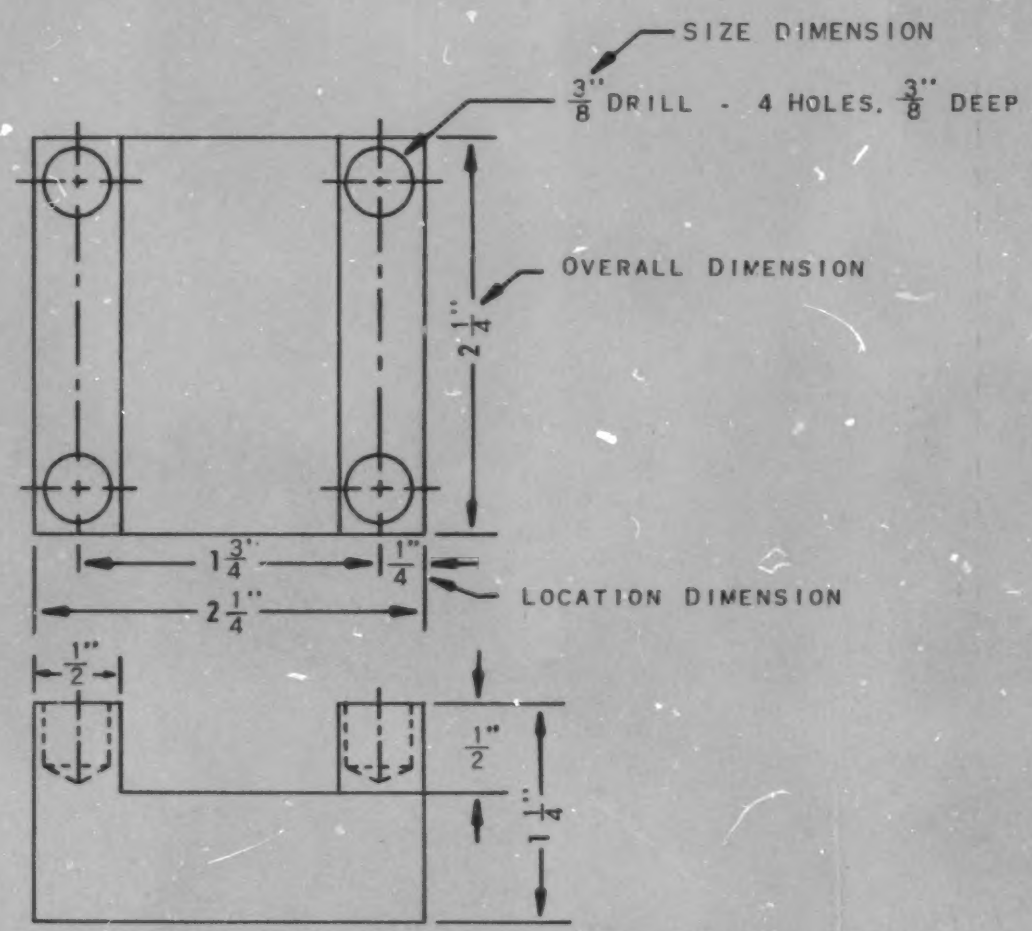
M. Flush contour

N. Convex contour

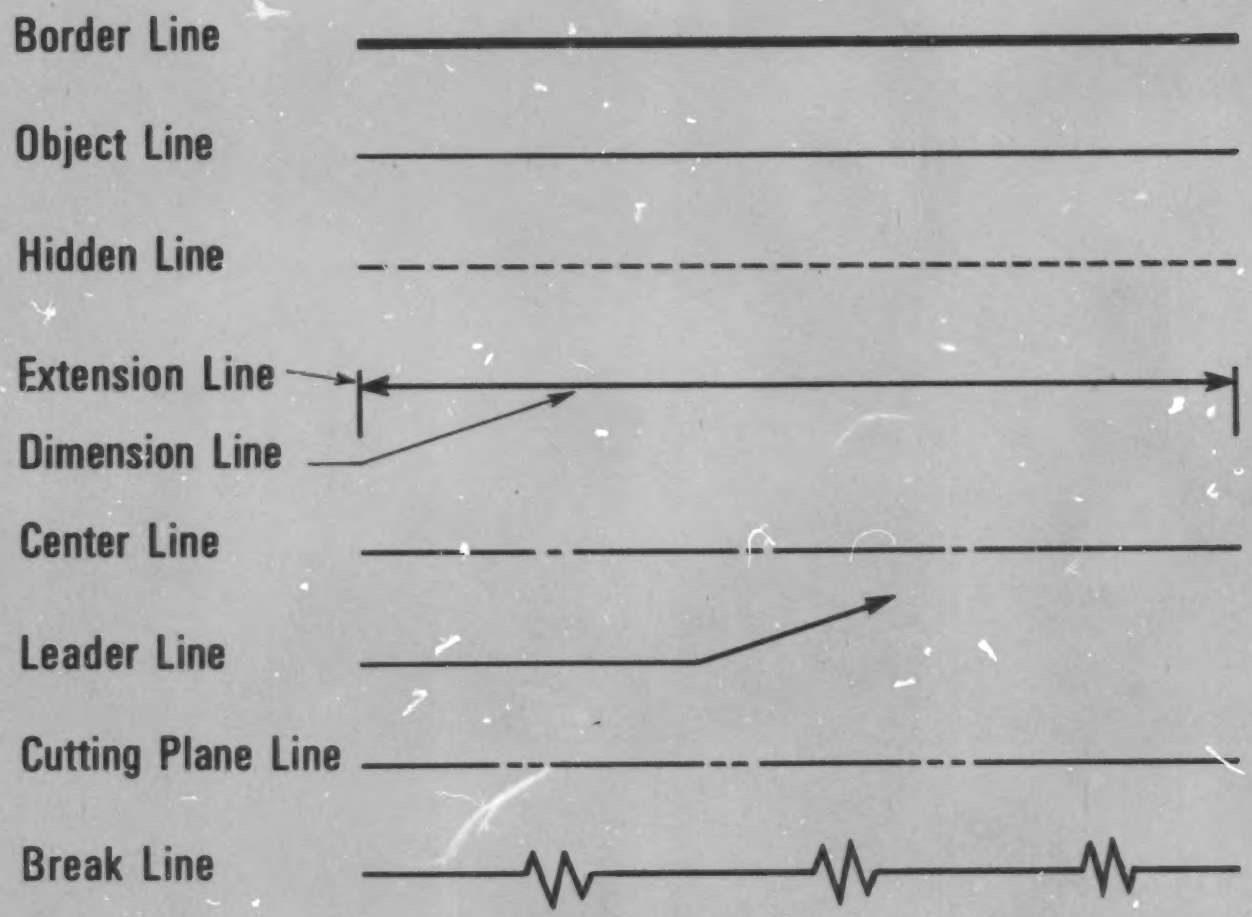
CONVERTING A PICTORIAL VIEW INTO A 3-SIDED VIEW



Types of Dimensions on a Drawing

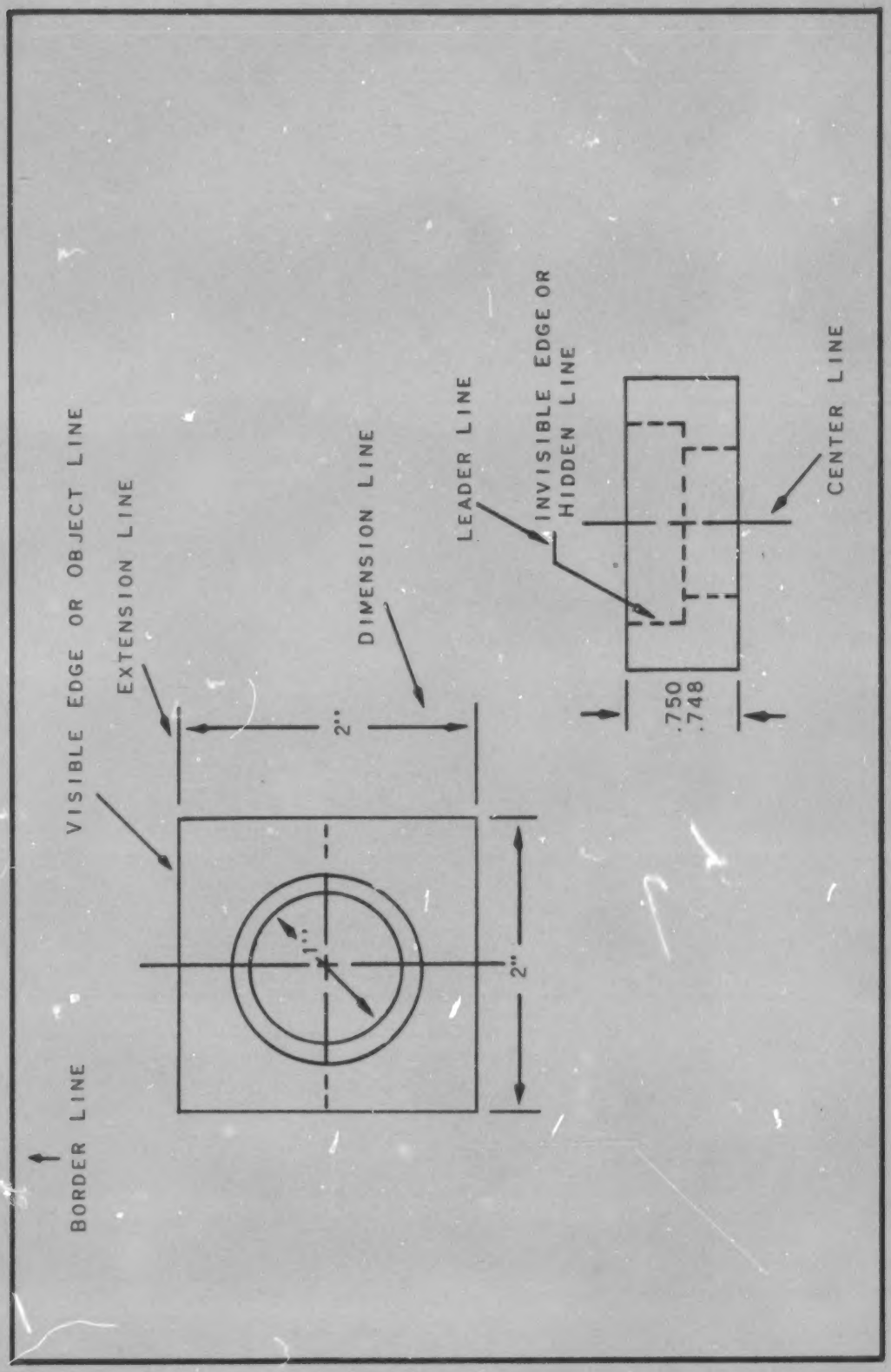


Basic Lines Used in Drawing and Sketching



00421

Use of Lines on a Drawing



Basic Welding Symbols

WELD TYPE	ARROW SIDE	FAR SIDE	BOTH SIDES
Fillet			
Plug or slot			Not used
Arc seam, arc spot			Not used
Butt or groove Square			
V			
Bevel			
U			
J			
Flare V			
Flare Bevel			

SUPPLEMENTARY SYMBOLS

WELD ALL AROUND	FIELD WELD	FLUSH CONTOUR	CONVEX CONTOUR

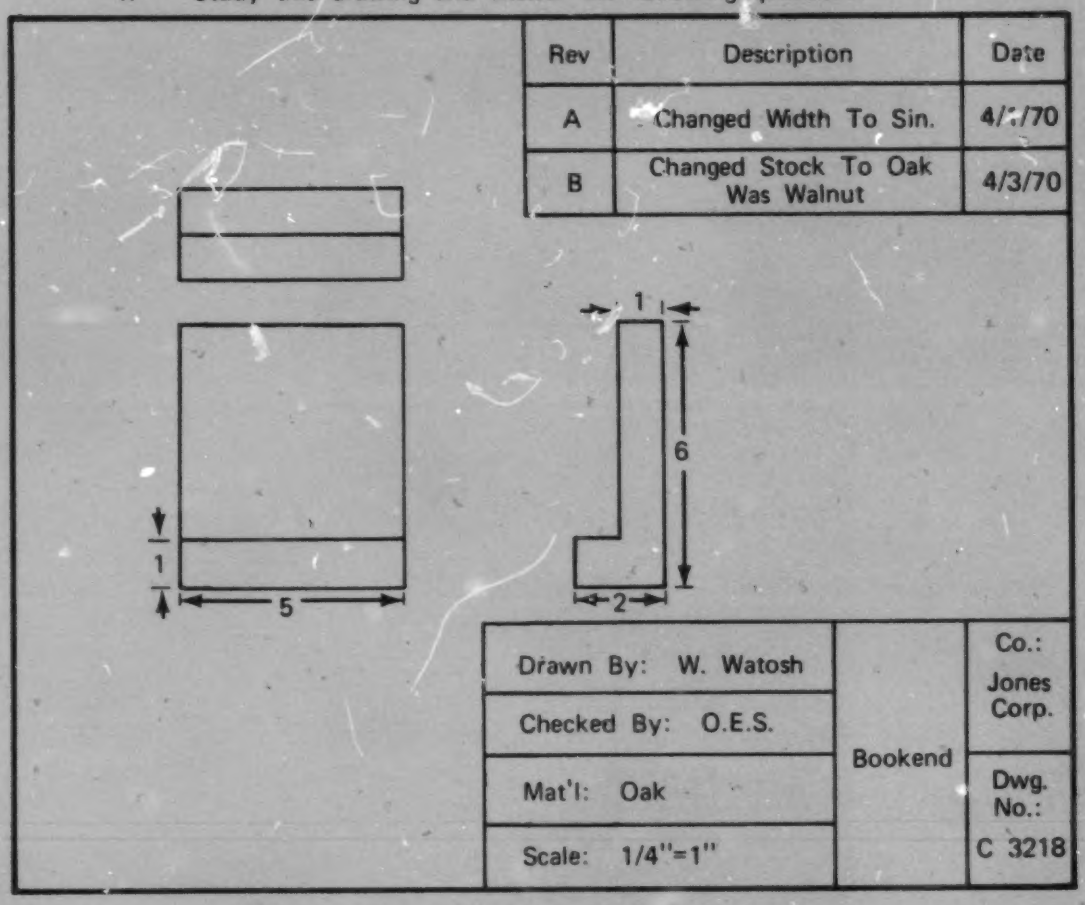
00423

DRAWING AND SKETCHING
UNIT I

ASSIGNMENT SHEET #1--READ AND INTERPRET A DRAWING

Much practice is necessary for developing skill in reading and interpreting a drawing. The questions and problems below will provide such practice. Work each of the problems and return to the instructor when completed.

1. Study this drawing and answer the following questions.



a. What company did the drawing? _____

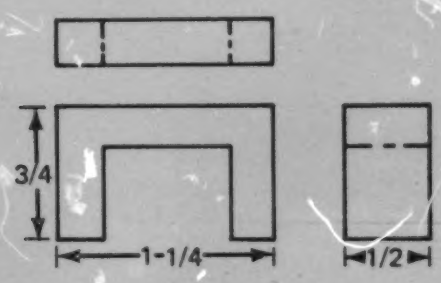
b. What is the name of the object? _____

c. What is the scale of the drawing? _____

d. Who was the draftsman? _____

ASSIGNMENT SHEET #1

2. Give the dimensions of this object.



a. Height _____ inches

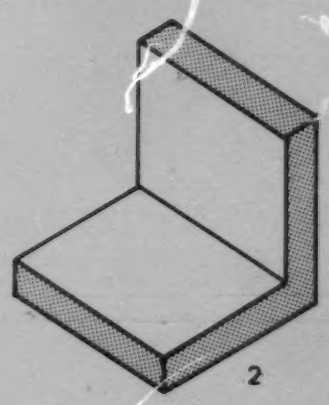
b. Width _____ inches

c. Depth _____ inches

3. Answer the following questions dealing with views.

a. Suppose you are standing directly in front of this object. You cannot see any other part. What view would you be seeing? _____

1

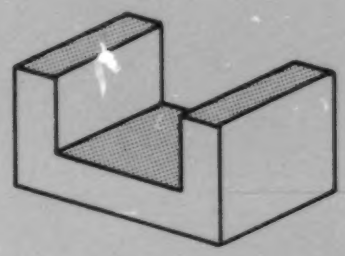


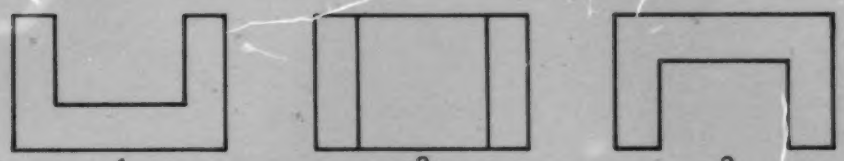
2

ASSIGNMENT SHEET #1

b. Which would be considered the front view of the following object?

_____

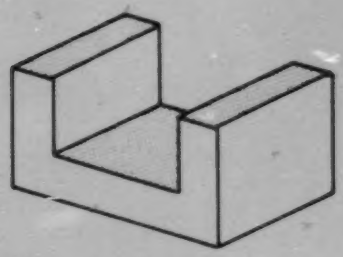




1 2 3

c. Which view would be considered the top view of the object below?

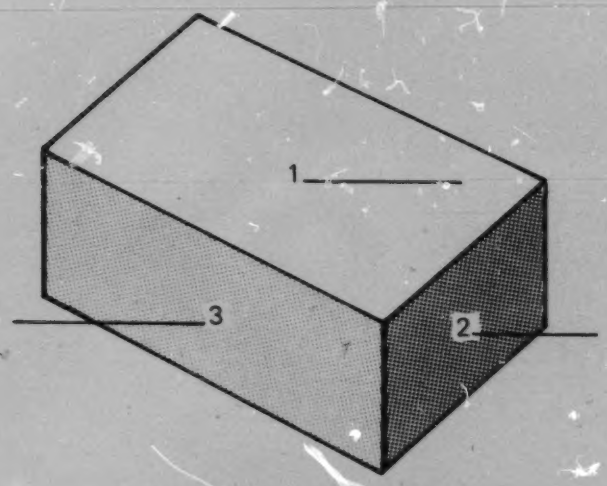
_____



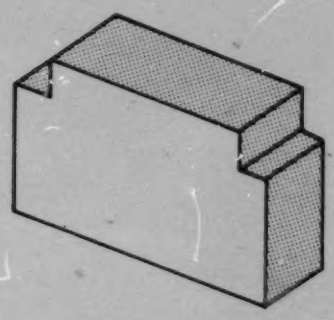
1 2 3

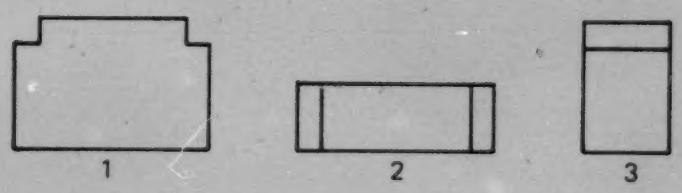
ASSIGNMENT SHEET #1

d. Label each part of the drawing below.



e. Study this object closely and label each view.





DRAWING AND SKETCHING
UNIT I

ASSIGNMENT SHEET #2--DRAW A THREE-VIEW SKETCH

Draw a three-view sketch of a rectangular block using the following dimensions. Be sure to show your dimensions.

1. 5" long by 2" wide by 1" thick

2. 6" long by 1" wide by 1/4" thick

DRAWING AND SKETCHING
UNIT I

ASSIGNMENT SHEET #3-DRAW A SIMPLE PROJECT

Complete a three-sided drawing of some project that will be built in the shop. Draw a front, side, and top view showing all dimensions. The instructor should approve the drawing before construction begins.

DRAWING AND SKETCHING
UNIT I

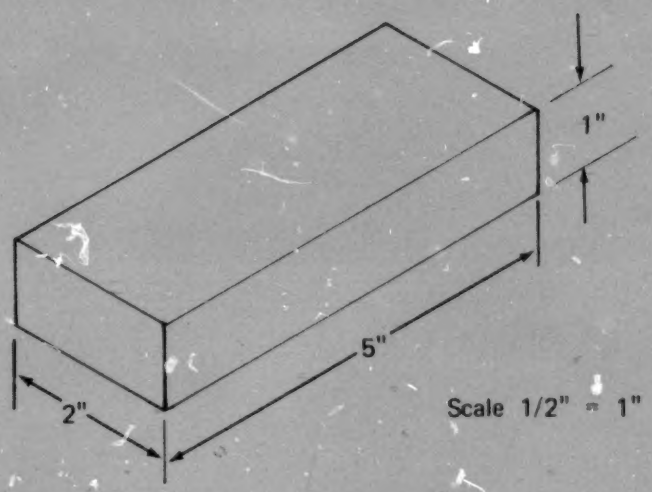
ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

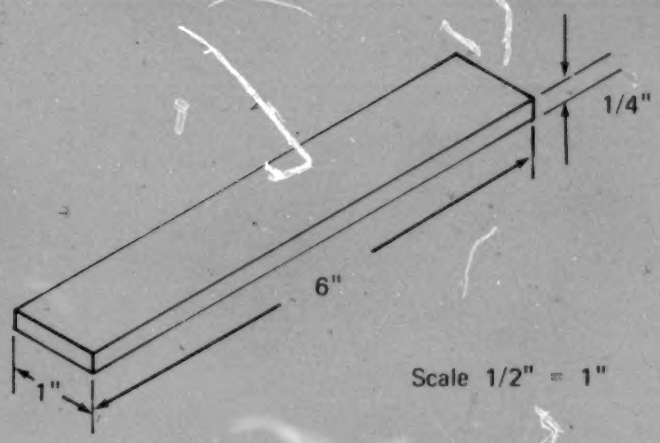
1. a. Jones Corporation
   b. Bookend
   c. 1/4" = 1"
   d. W. Watosh
2. a. Height 3/4"
   b. Width 1 1/4"
   c. Depth 1/2"
3. a. 1
   b. 1
   c. 2
   d. 1) Top
      2) End
      3) Front
   e. 1) Front
      2) Top
      3) Right side

Assignment Sheet #2

1.



2.



Assignment Sheet #3--Evaluated to the satisfaction of the instructor

DRAWING AND SKETCHING
UNIT I

TEST

1. Match terms on the right to the correct definition.

_____a. Notes and dimensions that tell the size of an object	1. Scale
_____b. Rough drawing representing the chief features of an object or scene	2. Dimension
_____c. Proportion between two sets of dimensions as between those of a drawing and its original	3. Pictorial view
_____d. Written message conveyed from the draftsman to the workman containing technical information	4. Size dimension
_____e. Illustration showing three or more sides of an object	5. Shape dimension
_____f. Photographic print in white on a bright blue ground used especially for copying maps, mechanical drawing, and architects' plans	6. Drawing
_____g. Process of illustrating the size of various objects	7. Sketch
_____h. Views that illustrate the shape of an object	8. Blueprint

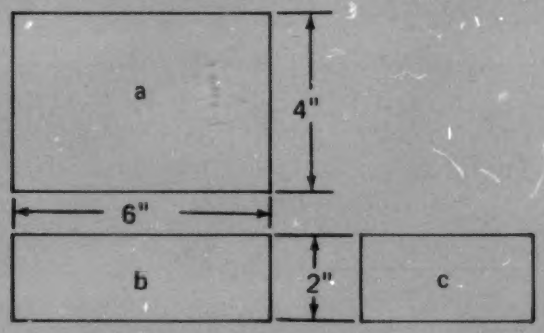
2. State in writing the purpose of a sketch or drawing.

3. Identify the three major views of a pictorial drawing.

a.

b.

c.



4. Select from the following list three basic elements of a drawing by placing an "X" in the blank.

_____a. Pictures

_____b. Lines

_____c. Dimensions

_____d. History

_____e. Notes

5. Match the basic types of dimensions on the right to the correct use.

_____a. Gives information concerning the size of an object

_____b. Describes a total distance, such as the complete length, width, or thickness of an object

_____c. Gives information concerning the location of some details of construction, such as a hole

1. Overall
2. Size
3. Location

6. Identify the following basic lines used in a drawing.

a.

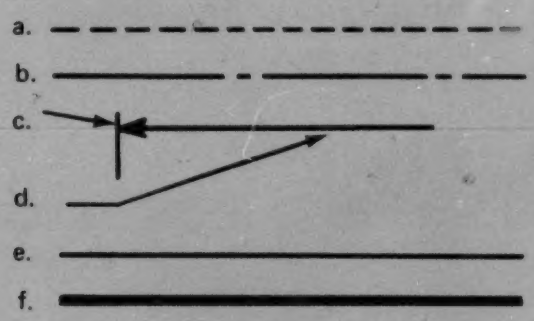
b.

c.

d.

e.

f.



7. Match the drawing abbreviations on the right to the correct name each represents.

_____a.	Standard	1.	F or Fin
_____b.	Countersink	2.	Chfr
_____c.	Outside diameter	3.	Stl
_____d.	Malleable iron	4.	Br#
_____e.	Hexagon	5.	Cir
_____f.	Cylinder	6.	R.
_____g.	Brass, SAE#	7.	Std
_____h.	Steel	8.	N. C.
_____i.	Square	9.	Hex
_____j.	Chamfer	10.	Deg
_____k.	Degree	11.	Sq.
_____l.	Circular	12.	Csk.
_____m.	Finish	13.	O. D.
_____n.	Radius	14.	Cyl
_____o.	National coarse	15.	Mal I

8. Identify the following basic welding symbols.

_____a.

_____b.

_____c.

_____d.

_____e.

_____f.

9. Read and interpret a drawing.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

10. Draw a simple three-view sketch of a rectangular block 6" long, 2" thick, and 4" wide.

11. Complete a drawing of a simple project to construct in the shop.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

DRAWING AND SKETCHING
UNIT I

ANSWERS TO TEST

1. a. 4 e. 3
   b. 7 f. 8
   c. 1 g. 2
   d. 6 h. 5
2. To express an idea or an object on paper so that it may be understood by other persons involved
3. a. Top
   b. Front or side
   c. End
4. b, c, e
5. a. 2
   b. 1
   c. 3
6. a. Hidden
   b. Center line
   c. Extension line
   d. Dimension line
   e. Object line
   f. Border line
7. a. 7 f. 14 k. 10
   b. 12 g. 4 l. 5
   c. 13 h. 3 m. 1
   d. 15 i. 11 n. 6
   e. 9 j. 2 o. 8

8. a. Fillet

   b. Butt

   c. V groove

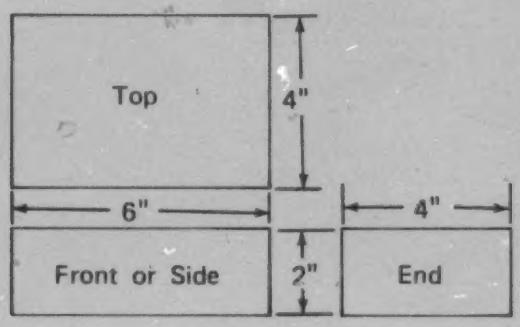
   d. Bevel groove

   e. U groove

   f. Weld all around

9. Evaluated to satisfaction of instructor.

10.



11. Evaluated to satisfaction of instructor.

POSITION WELDING
UNIT II

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to identify welding positions and properly and improperly formed beads. He should be able to complete exercises in the four positions. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with position welding to the correct definitions.
2. List four factors that determine proper machine adjustment.
3. Identify the four welding positions.
4. Select from a list reasons for removing slag from a weld.
5. Describe the importance of fusing one bead with another.
6. List four factors that determine weld quality.
7. Identify properly and improperly formed beads.
8. Discuss solutions to prevent arc blow.
9. Label a drawing of the different types of groove joints.
10. Demonstrate the ability to:
    a. Make a pad in the horizontal position.
    b. Make a single V-groove butt weld in the flat position.
    c. Make a single V-groove butt weld in the horizontal position.
    d. Make a single V-groove butt weld in the vertical up position.
    e. Make a single V-groove butt weld in the overhead position.
    f. Run a continuous bead using pine and flat plate.

POSITION WELDING
UNIT II

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and job sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Demonstrate and discuss procedures outlined on the job sheets.

G. Demonstrate weld patterns and rod manipulation.

H. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Weld Test Positions: Fillet Welds
2. TM 2--Weld Test Positions: Groove Welds
3. TM 3--Properly and Improperly Formed Beads

4. TM 4--Types of Groove Joints

5. TM 5--Undercutting and Overlap

D. Job sheets

1. Job Sheet #1--Make a Pad in Horizontal Position

2. Job Sheet #2--Make a Single V-Groove Butt Weld in Flat Position

3. Job Sheet #3--Make a Single V-Groove Butt Weld in Horizontal Position

4. Job Sheet #4--Make a Single V-Groove Butt Weld in Vertical Up Position

5. Job Sheet #5--Make a Single V-Groove Butt Weld in Overhead Position

6. Job Sheet #6--Run a Continuous Bead

E. Test

F. Answers to test

II. References:

A. Althouse, Turnquist, Bowditch. *Modern Welding.* Homewood, Illinois: The Goodheart-Willcox Company, Inc., 1970.

B. Giachino, Weeks, Brune. *Welding Skills and Practices,* 3rd ed. Chicago, Illinois: American Technical Society, 1967.

C. *The Welding Encyclopedia,* 16th ed. Morton Grove, Illinois: Monticello Books, 1965.

D. Little, Richard L. *Welding and Welding Technology.* New York: McGraw-Hill Book Company, 1973.

E. *Hobart Welding School Workbook.* Troy, Ohio: Hobart School of Welding Technology, 1969.

POSITION WELDING
UNIT II

INFORMATION SHEET

I. Terms and definitions

A. Pad--Series of overlapping stringer beads that completely cover the surface of a practice plate increasing its thickness by each subsequent layer

B. Horizontal position--Running of a horizontal bead on a vertical surface (Transparency 1)

C. Vertical position--Beads are deposited vertically on a vertical surface; axis of the weld is vertical (Transparency 1)

D. Weld face--Exposed surface of a fusion weld

E. Root--Bottom surface of a weld; the opposite side from which the welding was done

F. Penetration--Distance from the original surface of the base metal to that point at which fusion ceases

G. Undercutting--Portion of the crater left unfilled due to excessive current and the improper movement of the electrode; occurs at the edge of the bead (Transparency 5)

H. Crater--Depression in the face of a weld caused by arc force; usually found at the end of a bead

I. Fusion--Melting of metals until the molten parts unite with each other

J. Spatter--Deposit of small spots or particles of metal on the base metal alongside the bead (Transparency 3)

K. Overhead position--Position of welding wherein welding is performed from the underside of the joint

L. String bead--Weld bead made with very little rod manipulation

M. Root opening--Gap between the members to be joined at the root of the joint

N. Porosity--Condition caused by a trapped gas pocket in a weld as it solidifies

O. Slag inclusion--Nonmetallic porous material entrapped in weld metal or between the weld metal and base metal

P. Cold lap--Piling up of weld metal due to improper starts and current adjustments causing a defect usually at the start of the weld

INFORMATION SHEET

Q. Arc blow--Concentration of magnetic force acting on the welding arc causing it to deflect, move, or "blow" from its normal path

R. Coupon--That portion of a weld which is removed from the test plate to test

II. Factors that determine proper machine adjustment

A. Length of welding cables

B. Thickness of metal

C. Diameter and type of electrode

D. Welding technique used by operator

E. Efficiency of welding machine

F. Polarity of machine

G. Welding position

III. Welding positions (Transparencies 1 and 2)

A. Flat

B. Vertical

C. Overhead

D. Horizontal

IV. Reasons for removing slag

A. Permits better fusion of beads

B. Prevents gas pockets and slag inclusions from forming in bead

C. Improves appearance of bead

V. Importance of fusing one bead with another

A. Increases strength of weld

B. Improves appearance of weld

C. Improves penetration

INFORMATION SHEET

VI. Factors that determine weld quality

A. Amperage

B. Length of arc

C. Speed of travel

D. Position of electrode

VII. Properly and improperly formed beads (Transparency 3)

A. Current, voltage, and speed normal--Smooth well-formed bead with no undercutting, overlapping, or piling of slag

B. Current too low--Poor penetration; slow progress; excessive piling of weld metal

C. Current too high--Excessive spatter; undercutting of weld joints

D. Voltage too high--Poor penetration with flat head; weld zone not shielded

E. Voltage too low--Poor penetration; wide hamped bead; electrode too close to crater, causing porosity

F. Speed too slow--Excessive heat; piling up of weld metal, leading to unnecessary distortion of joint

G. Speed too fast--Irregular bead; poor penetration; not enough metal in joint, causing a weak joint

VIII. Solutions to prevent arc blow

A. Reduce current

B. Switch polarity

C. Change current to AC

D. Change location of ground clamp

E. Wrap ground cable around workpiece and pass ground current through it to neutralize magnetic field

F. Maintain a short arc

INFORMATION SHEET

IX. Types of groove joints (Transparency 4)

A. Square

B. J

C. Single bevel

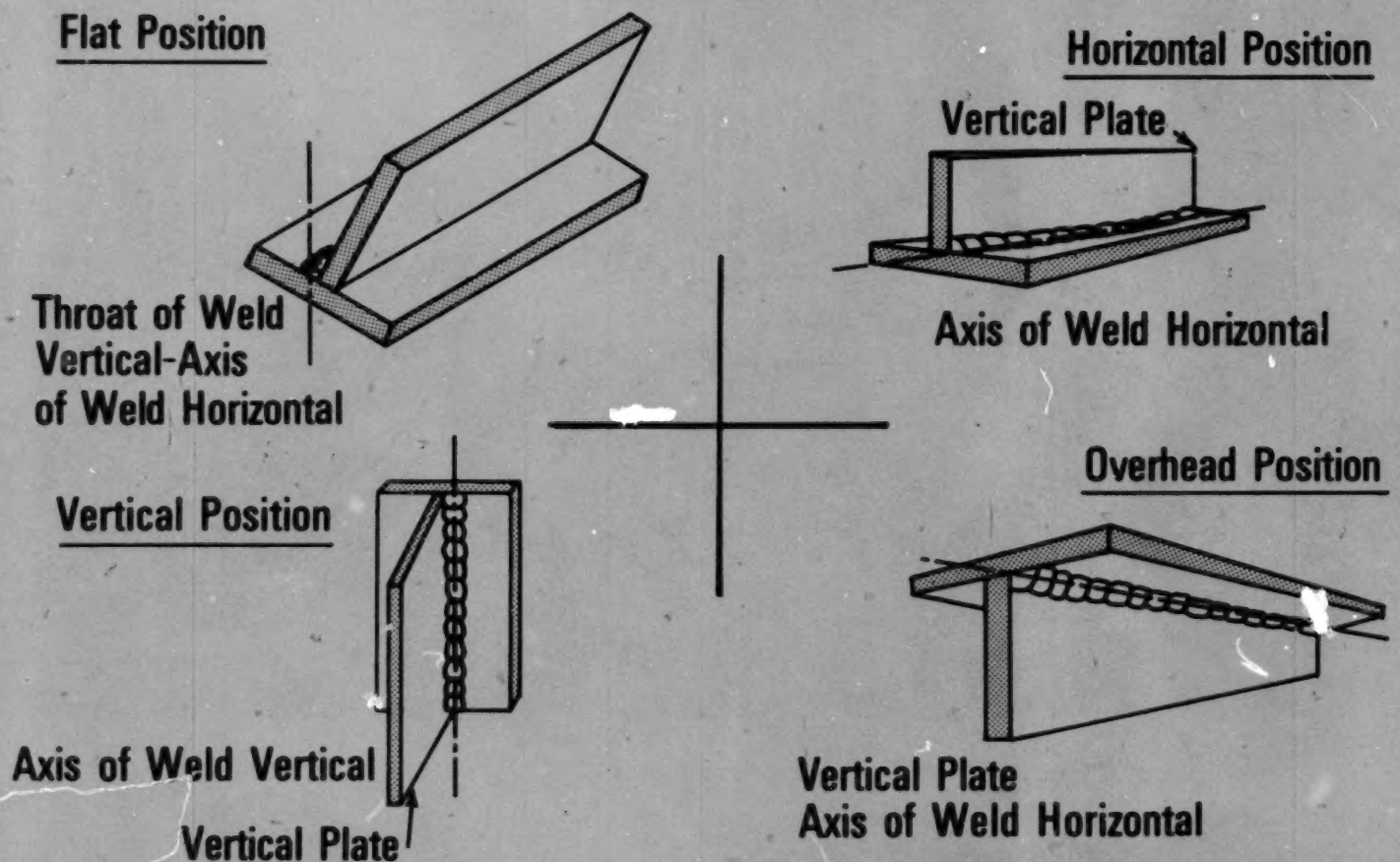
D. Single V

E. Double bevel

F. U

Weld Test Positions

FILLET WELDS



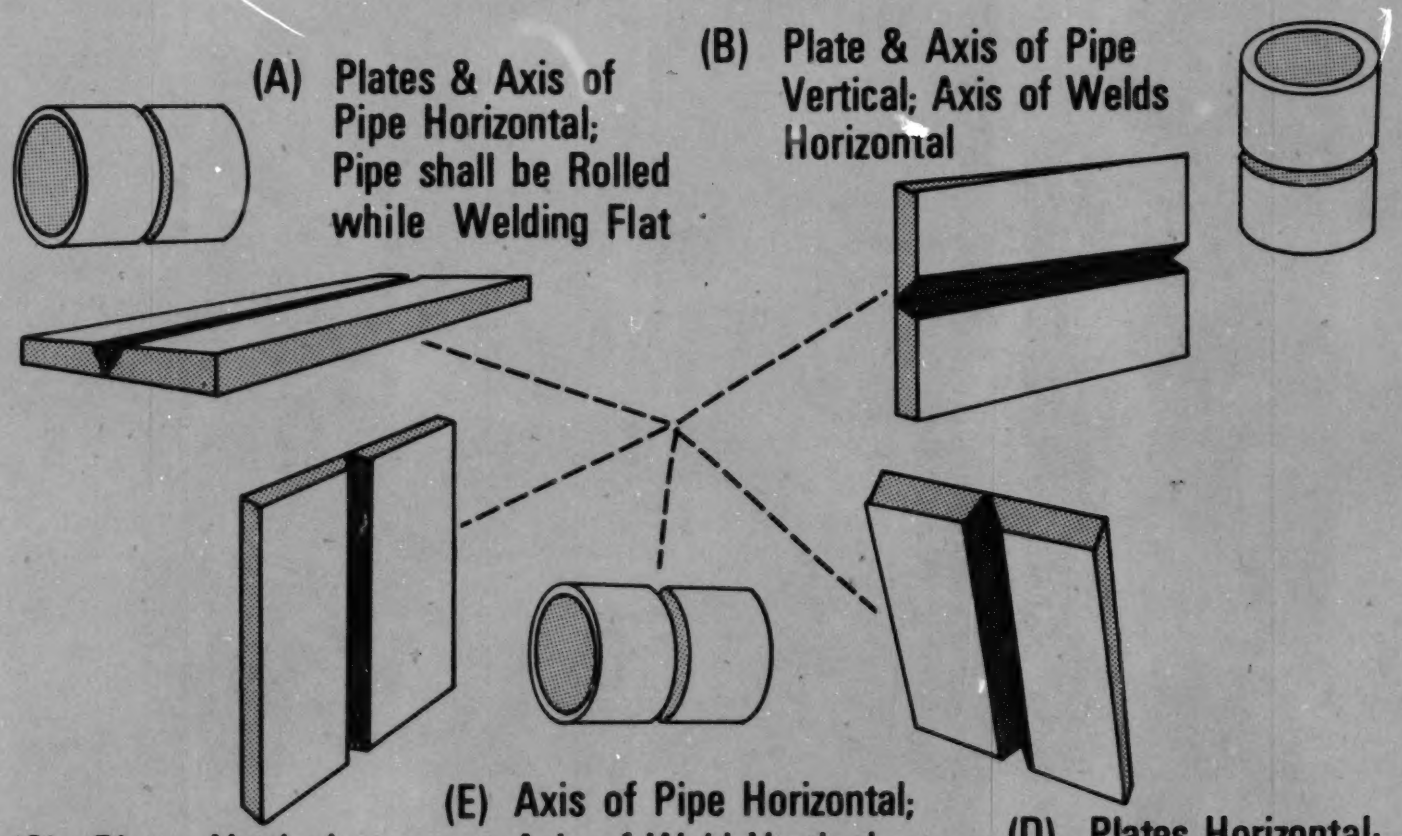
00445

TM 1

Ag II - 43-F

Weld Test Positions

GROOVE WELDS

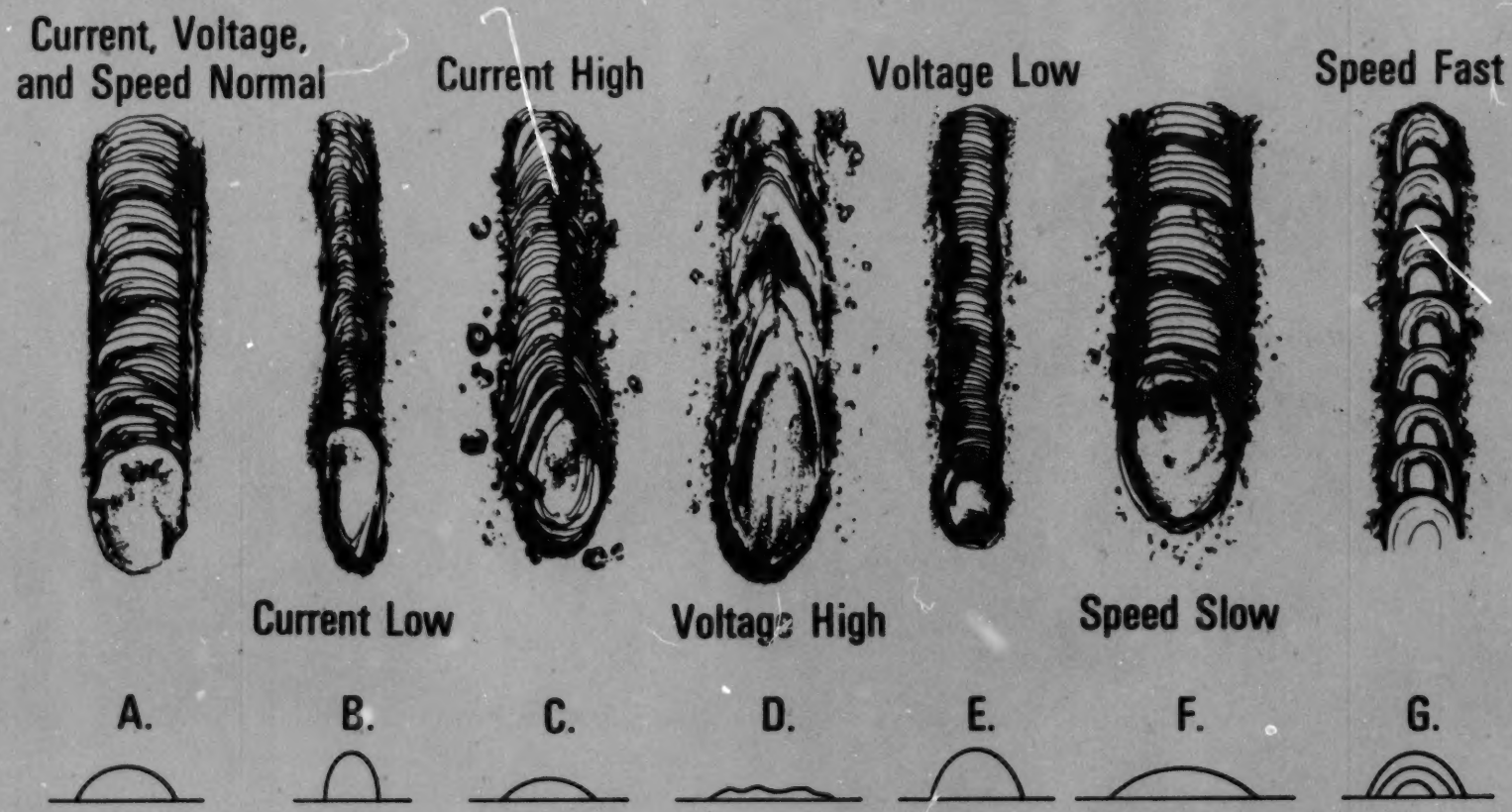


00146

TM 2

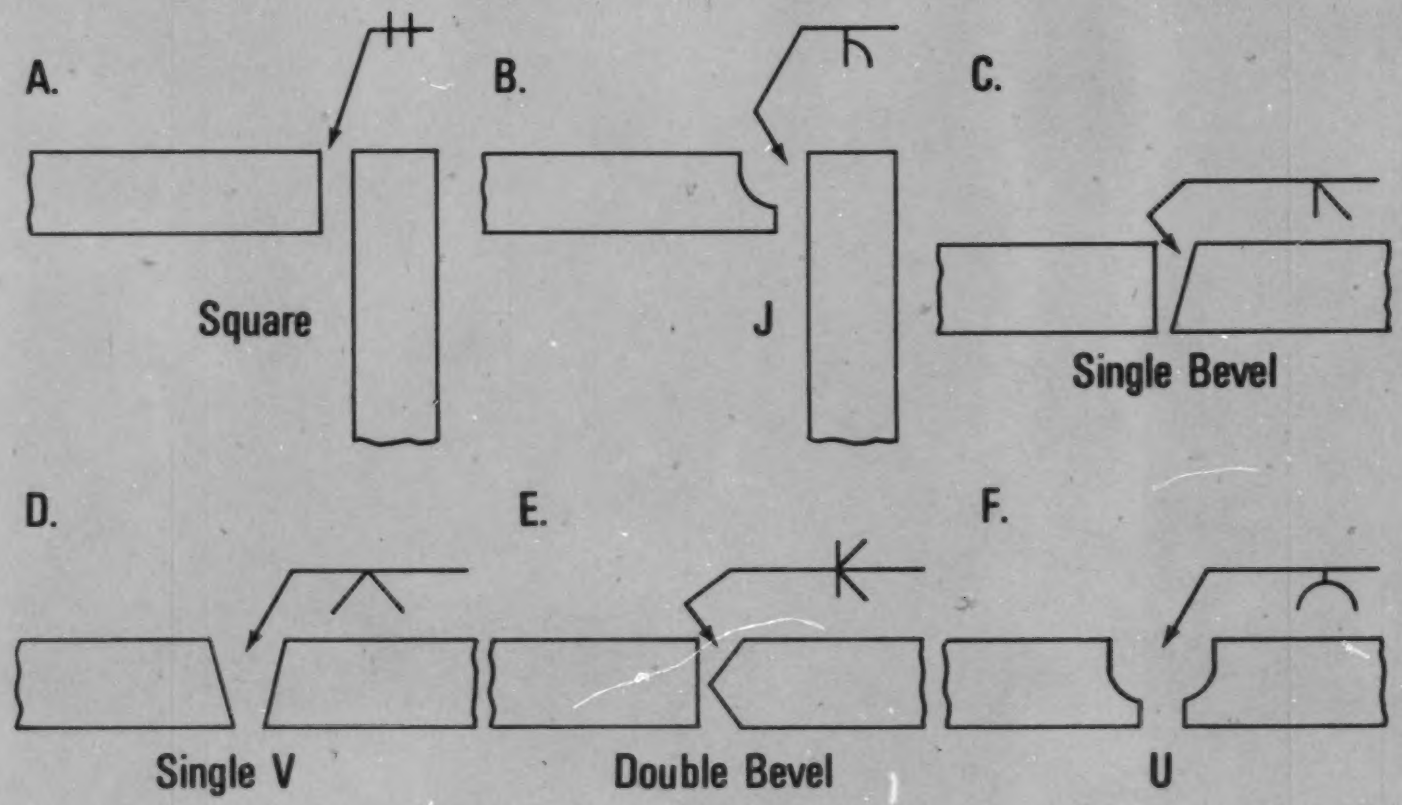
Ag 11 - 45-F

Properly and Improperly Formed Beads



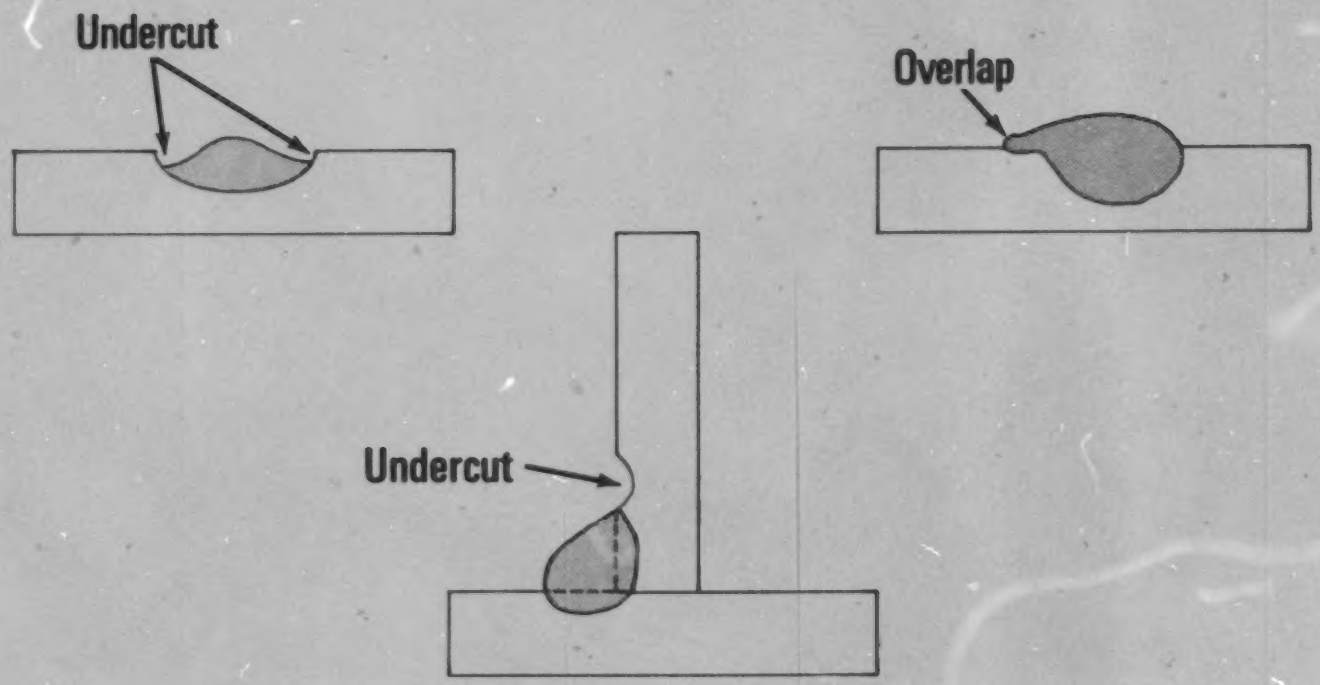
00047

Types of Groove Joints



00448

Undercutting and Overlap



POSITION WELDING
UNIT II

JOB SHEET #1--MAKE A PAD IN THE HORIZONTAL POSITION

I. Equipment and materials

A. Arc welding station and required tools

B. Protective clothing

C. E-6010, 6011, or 6013 electrode 1/8" or 5/32"

1. 1/8" - 75-130 amps

2. 5/32" - 90-175 amps

D. AC current

E. Mild steel plate 3/8" thick, 6" by 6"

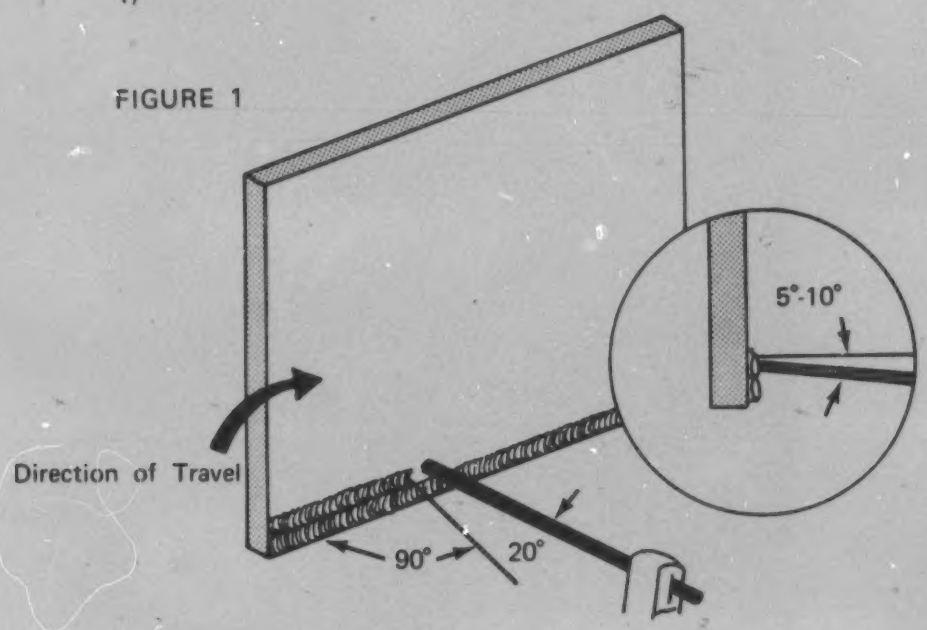
II. Procedure

A. Adjust machine to correct type and amount of current

B. Position metal in horizontal position for welding and tack

C. Position electrode down 5°-10° and angled 20° in direction of travel (Figure 1)

FIGURE 1



JOB SHEET #1

D. Strike arc and hold high arc length 1-2 seconds in lower left-hand corner welding to the lower right-hand corner

(NOTE: Some type of manipulation of the rod will be helpful.)

(CAUTION: Care should be taken to hold center of bead from 1/8" to 3/16" from bottom edge to avoid burning off edge.)

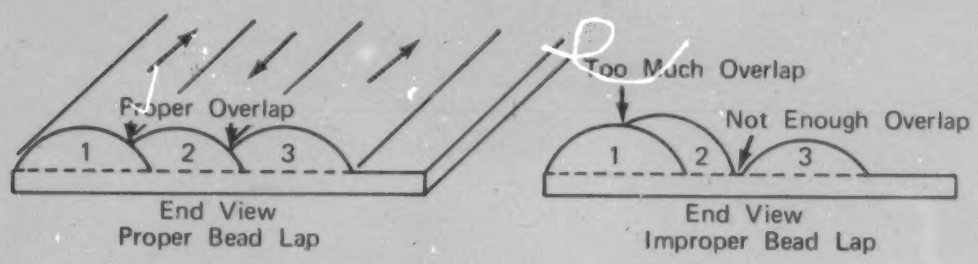
E. Chip and brush weld clean after laying first bead and check weld surface for pinholes and slag inclusions

(NOTE: Crater at end of bead should be filled.)

F. Continue running beads, overlapping at least the first one-third of the previous bead until pad is filled (Figure 2)

(NOTE: Alternate travel direction for each pass.)

FIGURE 2



(NOTE: Clean each pass thoroughly before overlapping with another to insure a sound weld deposit with proper penetration. Each pass should fuse with the base metal as well as with the preceding pass.)

G. Clean the pad and turn it in for instructor's approval

POSITION WELDING
UNIT II

JOB SHEET #2--MAKE A SINGLE V-GROOVE BUTT WELD IN FLAT POSITION

(NOTE: This welding exercise will be tested.)

I. Equipment and materials

A. Arc welding station and required tools

B. Mild steel, two pieces 3/8" thick, 5" x 6"

C. E-6010, 6011, or 6013 electrode, 1/8" or 5/32"

1. 1/8" - 75-130 amps

2. 5/32" - 90-175 amps

D. AC current

E. Protective clothing

II. Procedure

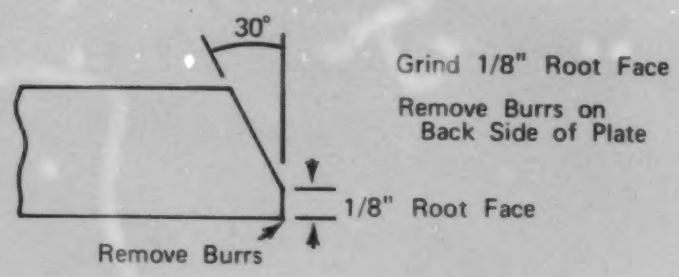
A. Adjust welding machine for correct current and amperage settings

B. Prepare metal for welding

1. Bevel edge of plates 30° (Figure 1)

FIGURE 1

Bevel One Long Side of Each Plate



2. Remove all burrs and slag

JOB SHEET #2

C. Place metal together parallel to each other leaving a root gap from 3/32" to 1/8" in flat position (Figures 2 and 3)

FIGURE 2

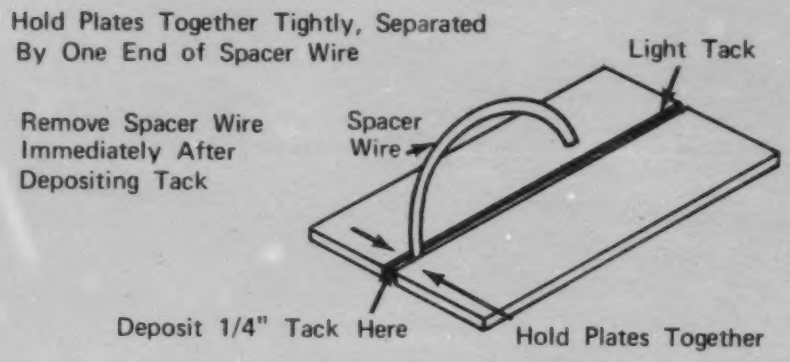
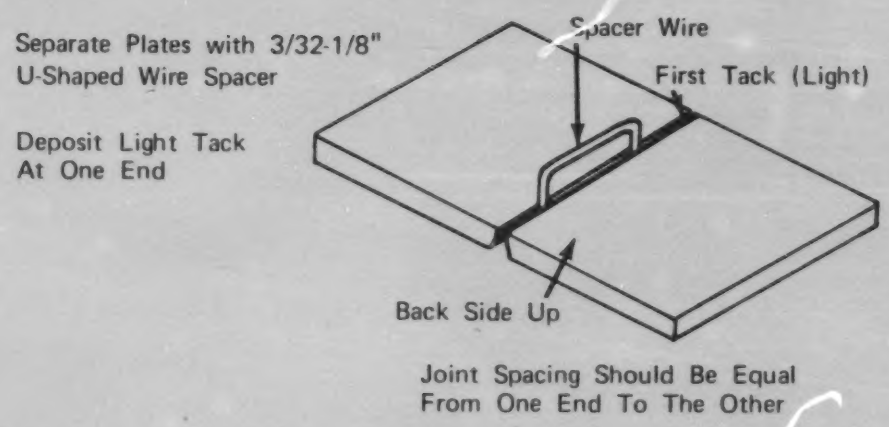


FIGURE 3



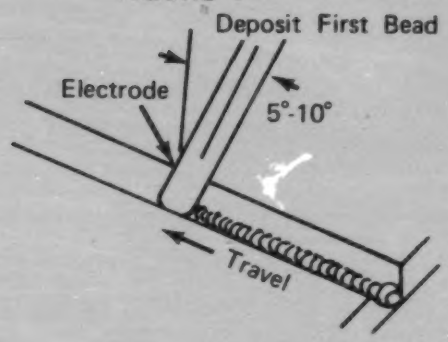
D. Tack pieces together at both ends and feather tack with a right angle grinder

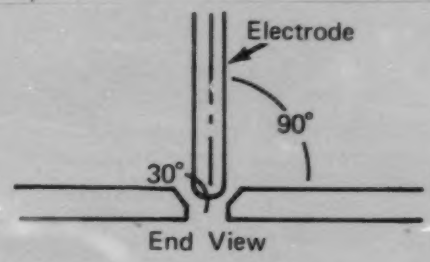
(NOTE: Place a strip of metal under each piece to hold it off table top when welding.)

JOB SHEET #2

E. Position electrode straight into plate and angle 5°-10° away from weld puddle (Figure 4)

FIGURE 4



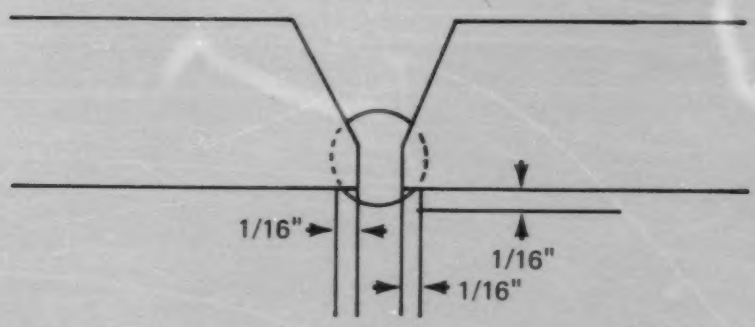


Hold Electrode in Vertical Position. Angle Electrode Away from Weld Puddle 5°-10°. Travel from Right to Left. Penetrate Joint Completely.

F. Strike high arc length to heat plates, then move to end and weld plates together using a stringer bead

(NOTE: The root pass should have 100% penetration on both plates extending through the root and overlapping 1/16" of an inch on each side. The back of the root pass should have a convex appearance when observed from the bottom of the plate. See Figure 5.)

FIGURE 5



(CAUTION: Avoid undercutting faces of groove.)

G. Chip slag and brush weld clean

JOB SHEET #2

H. Deposit necessary filler passes to fill out the V, using care to remove all slag deposits between each pass

(NOTE: Filler passes can be stringers or weaves.)

I. Make cover pass or passes slightly convex, overlapping edge of groove 1/16" on each side

J. Cut and prepare two coupons out of this weld

K. Cool plates slowly

(CAUTION: Do not place plates in water.)

L. Turn in plate to instructor for testing

POSITION WELDING
UNIT II

JOB SHEET #3--MAKE A SINGLE V-GROOVE BUTT WELD IN THE HORIZONTAL POSITION

(NOTE: This welding exercise will be tested.)

I. Equipment and materials

A. Arc welding station and required tools

B. Mild steel plates, two pieces 3/8" thick, 5" x 6"

C. E-6010, 6011, or 6013 electrode, 1/8" or 5/32"

1. 1/8" - 75-130 amps

2. 5/32" - 90-175 amps

D. AC current

E. Protective clothing

II. Procedure

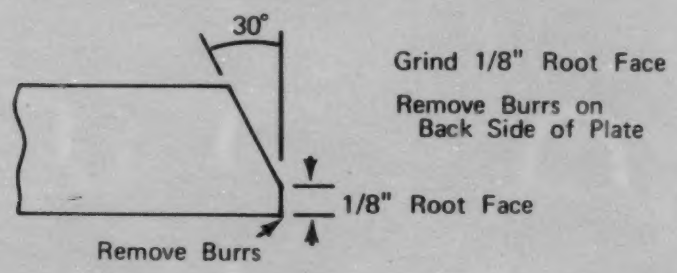
A. Adjust welding machine for correct current and amperage settings.

B. Prepare plates for welding

1. Bevel each plate 30° (Figure 1)

FIGURE 1

Bevel One Long Side of Each Plate



2. Remove all burrs and slag if flame cut

C. Tack plates together leaving a root gap of 3/32"-1/8" slag and feather tacks

JOB SHEET #3

D. Position plates vertically as shown (Figures 2 and 3)

FIGURE 2

Hold Plates Together Tightly, Separated By One End of Spacer Wire

Remove Spacer Wire Immediately After Depositing Tack

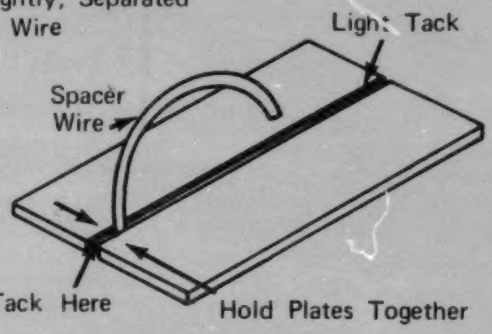
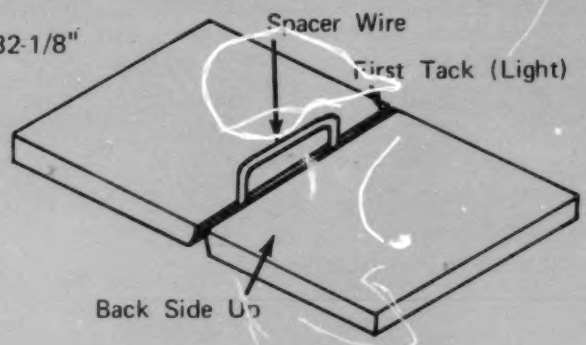


FIGURE 3

Separate Plates with 3/32-1/8" U-Shaped Wire Spacer

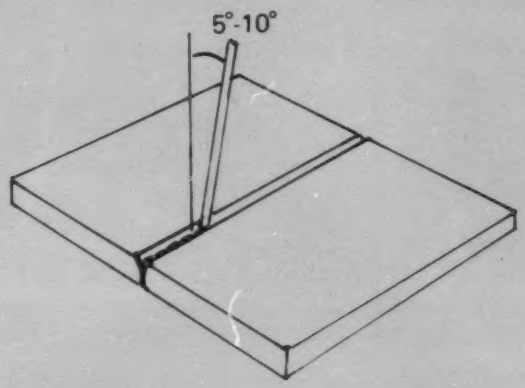
Deposit Light Tack At One End



Joint Spacing Should Be Equal From One End To The Other

E. Hold electrode 90° or straight into joint, tilting 5°-10° in direction of travel (Figure 4)

FIGURE 4

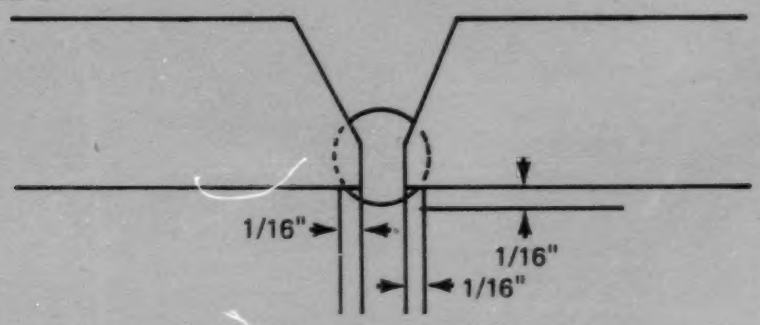


JOB SHEET #3

F. Strike arc and hold high arc length to heat plates; use root pass

(NOTE: The root pass should have 100% penetration on both plates extending through the root and overlapping 1/16" of an inch on each side. The back of the root pass should have a convex appearance when observed from the bottom of the plate. See Figure 5.)

FIGURE 5



G. Chip slag and brush weld clean after each pass

H. Deposit additional welds as stringers or weaves (as determined by instructor)

I. Make cover pass or passes slightly convex and overlapping top edge of groove 1/16" on each side

J. Cut and prepare coupons

K. Cool plate in still air slowly

(CAUTION: Do not cool in water.)

L. Test coupons

POSITION WELDING
UNIT II

JOB SHEET #4--MAKE A SINGLE V-GROOVE BUTT WELD IN THE VERTICAL UP POSITION

I. Equipment and materials

A. Arc welding station and required tools

B. Mild steel plates, two pieces 3/8" thick, 5" x 6"

C. E-6010, 6011, or 6013 electrode, 1/8" or 5/32"

1. 1/8" electrode 75-130 amps

2. 5/32" electrode 90-175 amps

D. AC current

E. Protective clothing

II. Procedure

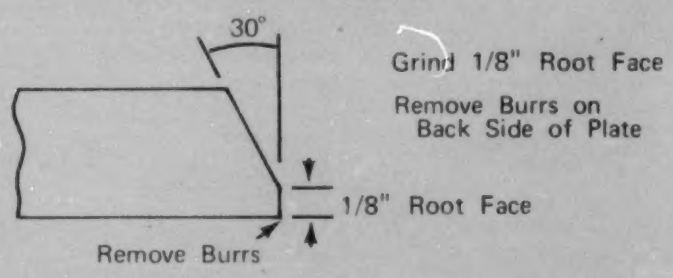
A. Adjust welding machine for correct current and amperage settings

(NOTE: Vertical up requires less amperage than flat and horizontal welding.)

B. Prepare plates for welding (Figure 1)

FIGURE 1

Bevel One Long Side of Each Plate



1. Bevel each plate 30°

2. Remove all burrs and slag if flame cut

JOB SHEET #4

3. Tack plates together leaving a 3/32" to 1/8" root gap (Figures 2 and 3)

FIGURE 2

Hold Plates Together Tightly, Separated By One End of Spacer Wire

Remove Spacer Wire Immediately After Depositing Tack

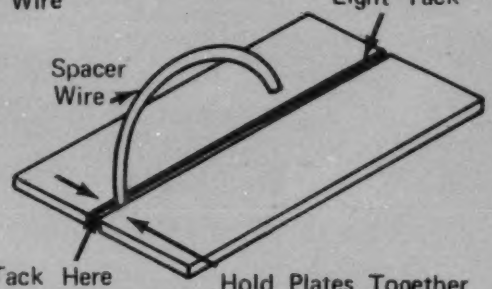
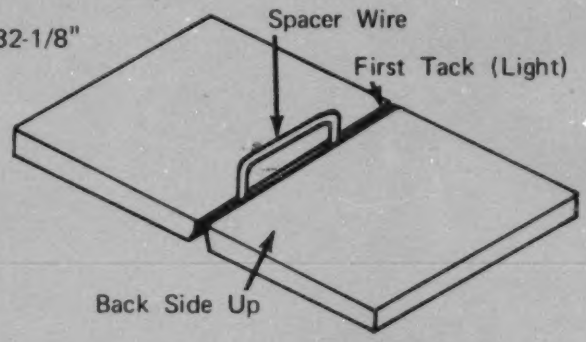


FIGURE 3

Separate Plates with 3/32-1/8" U-Shaped Wire Spacer

Deposit Light Tack At One End

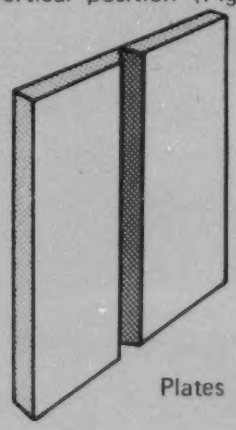


Joint Spacing Should Be Equal From One End To The Other

4. Slag and feather tack as necessary

C. Position plates in vertical position (Figure 4)

FIGURE 4

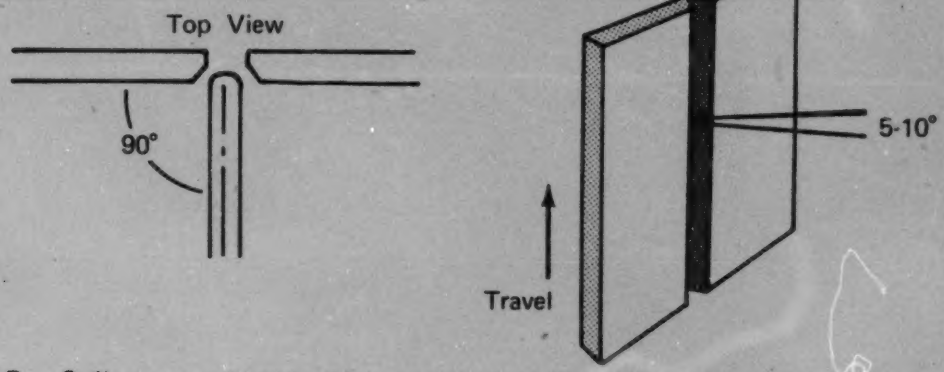


Plates Vertical Axis of Weld Vertical

JOB SHEET #4

D. Position electrode 90° or straight into joint angling electrode 5°-10° up from horizontal (Figure 5)

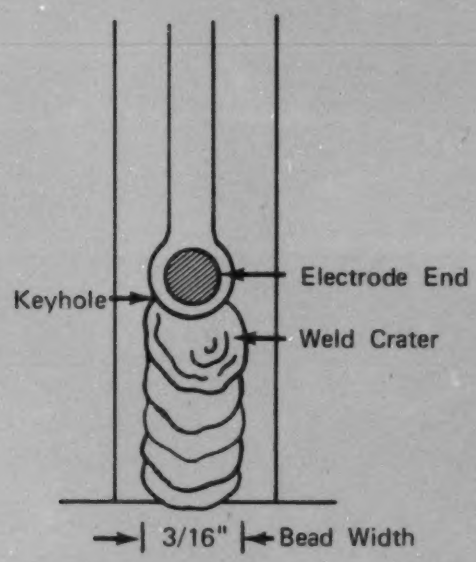
FIGURE 5



E. Strike arc and hold a high arc length to heat plates; move to bottom of plate and start weld

(NOTE: Melt out key hole as large as electrode diameter. See Figure 6.)

FIGURE 6

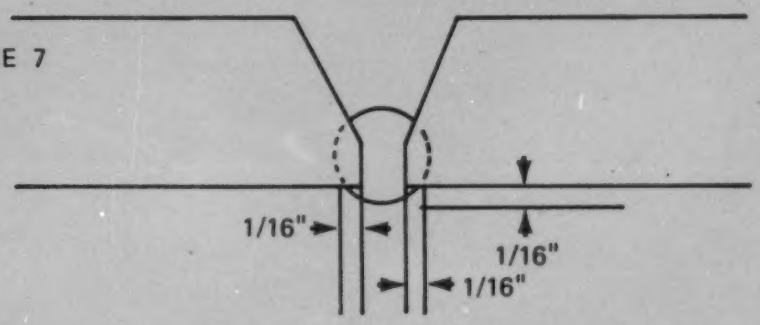


JOB SHEET #4

F. Fill crater to about 3/16" bead width

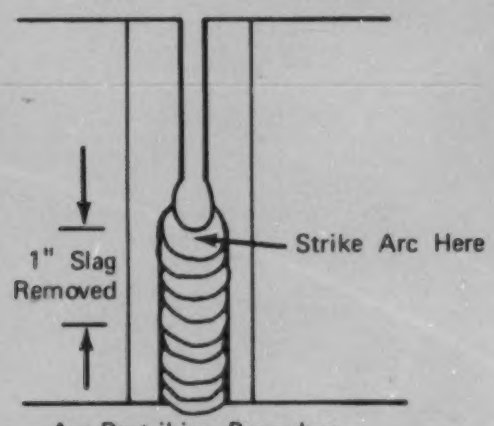
(NOTE: Some form of electrode manipulation is helpful in forming a bead. The root pass should have 100% penetration on both plates extending through the root and overlapping 1/16" of an inch on each side. The back of the root pass should have a convex appearance when observed from the bottom of the plate. See Figure 7.)

FIGURE 7



G. Remove slag from end of bead and restrike arc below keyhole should arc be broken before completion of bead (Figure 8)

FIGURE 8



Arc-Restriking Procedure

H. Remove slag and brush each weld before applying next pass

I. Deposit necessary filler passes to fill joint, using stringers or weaves

J. Make cover pass or passes slightly convex and overlapping top edge of groove 1/16" on each side

JOB SHEET #4

K. Cut and prepare coupons

L. Cool plates or coupons in still air slowly

(CAUTION: Do not cool in water.)

M. Test coupons

POSITION WELDING
UNIT II

JOB SHEET #5--MAKE A SINGLE V-GROOVE BUTT WELD IN THE OVERHEAD POSITION

(NOTE: This welding exercise will be tested.)

I. Equipment and materials

A. Arc welding station with necessary tools and equipment

B. Mild steel plates, two pieces 3/8" x 5" x 6"

C. E-6010, 6011, or 6013 electrode, 1/8" or 5/32"

1. 1/8" electrode - 75-130 amps

2. 5/32" electrode - 90-175 amps

D. AC current

E. Protective clothing

II. Procedure

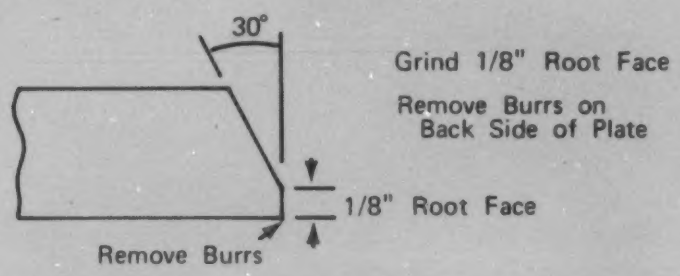
A. Adjust welding machine for correct current and amperage settings

B. Prepare plates for welding

1. Bevel one long side of each plate 30° (Figure 1)

FIGURE 1

Bevel One Long Side of Each Plate



2. Remove all burrs and slag

JOB SHEET #5

3. Tack plates together with a 3/32"-1/8" root gap (Figures 2 and 3)

FIGURE 2

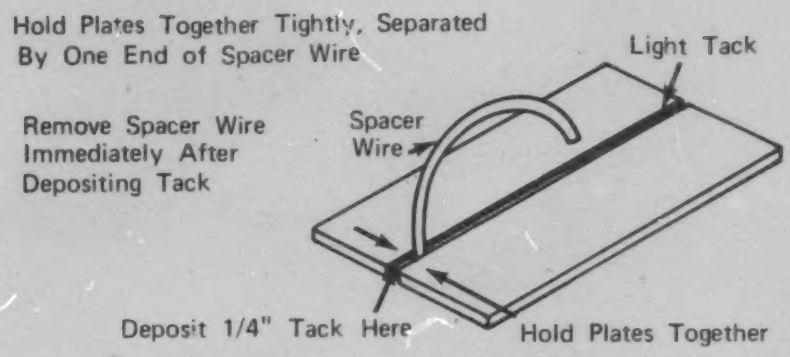
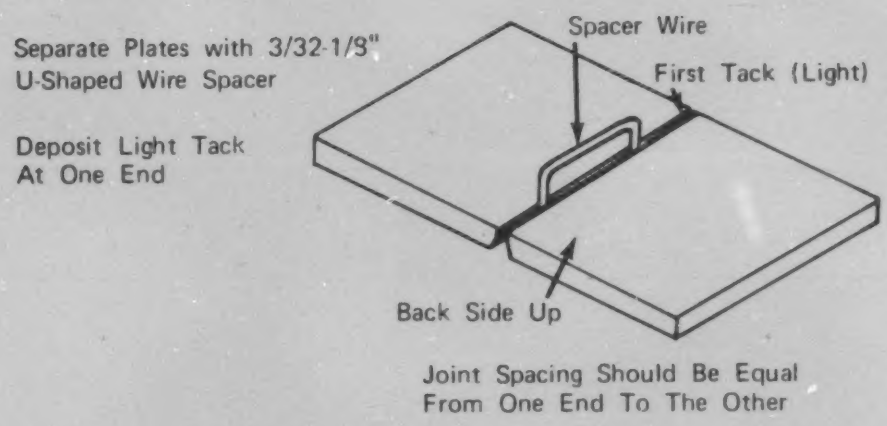


FIGURE 3



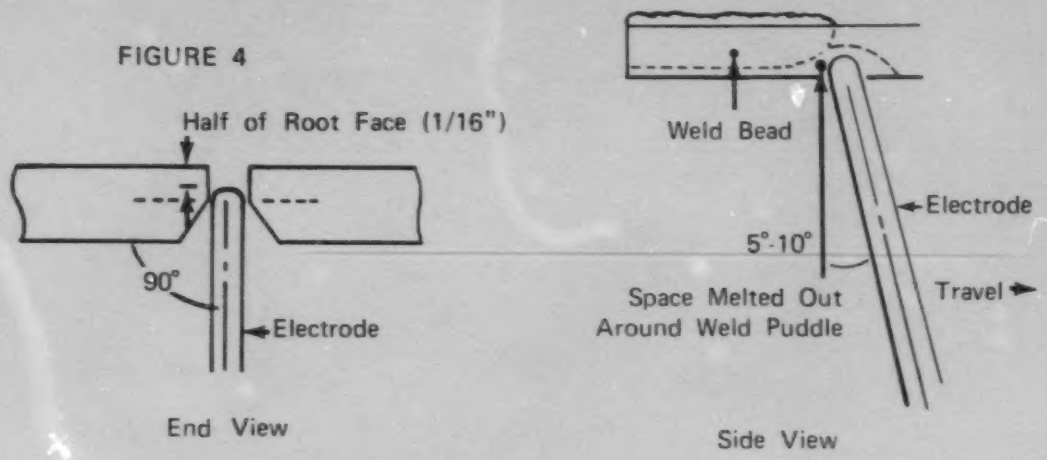
4. Slag and feather tack as necessary

C. Position plates in overhead position

JOB SHEET #5

D. Hold electrode straight into joint vertically and angled 5°-10° in direction of travel (Figure 4)

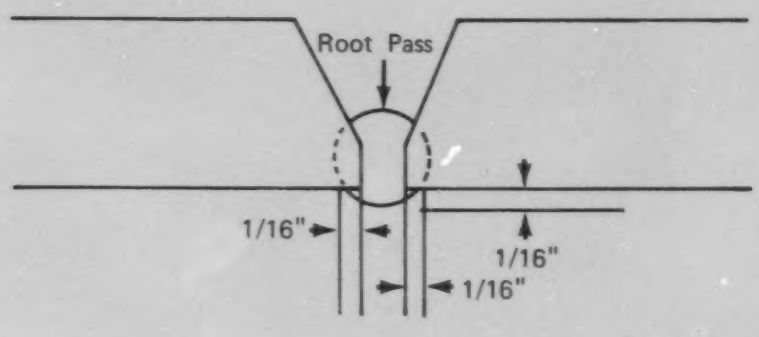
FIGURE 4



E. Strike arc, holding long arc to heat plates and prevent cold lap; move to end of plate and start weld

(NOTE: The root pass should have 100% penetration on both plates extending through the root and overlapping 1/16" on each side. The back of the root pass should have a convex appearance when observed from the bottom of the plate. See Figure 5.)

FIGURE 5

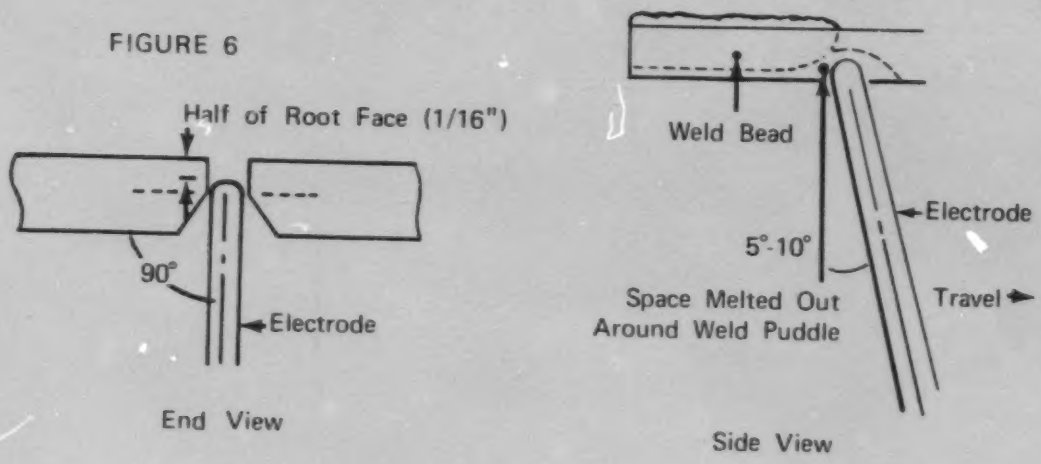


JOB SHEET #5

F. Follow welding technique below as root pass is run

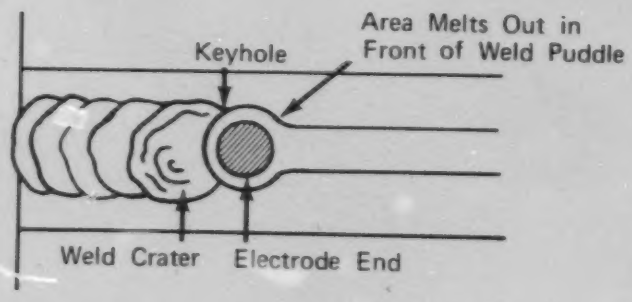
1. Hold short arc length and position end of electrode half-way into root gap (Figure 6)

FIGURE 6



(NOTE: A keyhole should form in front of weld puddle to insure good fusion to root of joint. See Figure 7.)

FIGURE 7

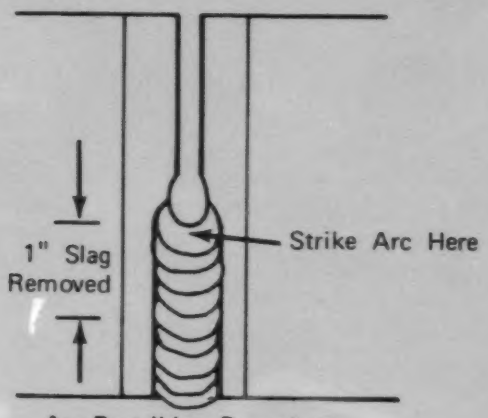


2. Deposit thin layers of filler metal using some form of rod manipulation to control weld puddle

JOB SHEET #5

G. Remove slag from one inch of bead and restrike arc should arc be broken before weld is completed (Figure 8)

FIGURE 8

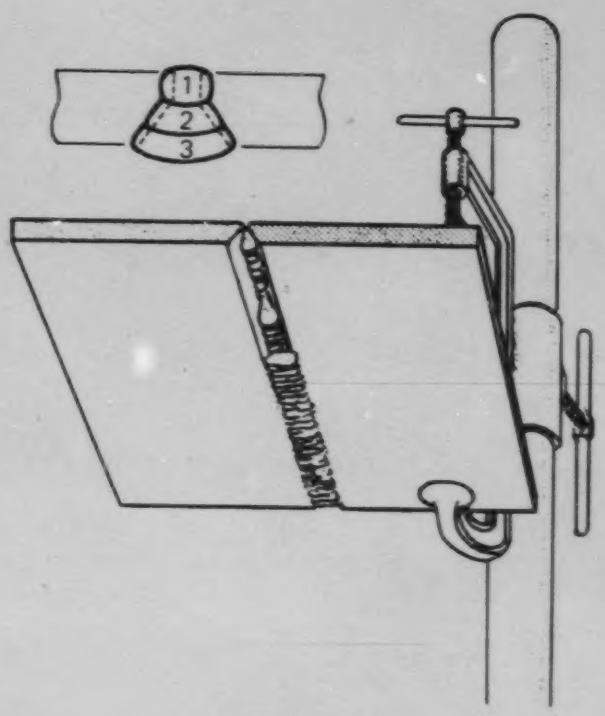


Arc-Restriking Procedure

H. Slag each pass thoroughly before applying next one

I. Deposit filler passes to fill joint, using stringers or weaves (Figure 9)

FIGURE 9



JOB SHEET #5

J. Cover pass or passes should be well fused into previous passes with a 1/16" overlap at the top and on both sides of V-joint; bead should be convex in contour

K. Cut and prepare coupons

L. Cool plates in still air, never water

M. Test coupons

POSITION WELDING
UNIT II

JOB SHEET #6--RUN A CONTINUOUS BEAD

I. Tools and equipment

A. Welder, electrode holder, and ground clamp

B. Gloves, helmet, and safety glasses

C. Chipping hammer

D. Wire brush

E. Pliers

II. Materials

A. Mild steel plate, 4" long by 4" wide by 1/8" to 3/8" thick

B. Black pipe nipple, 4" long by 3/4" to 2" in diameter

C. Welding rod, E-6010, 6011, 6013

III. Procedure

A. Place nipple near center of plate

B. Place metal in proper welding position

C. Start weld at position shown in Figure 1 on the following page

D. Hold electrode 25° from nipple

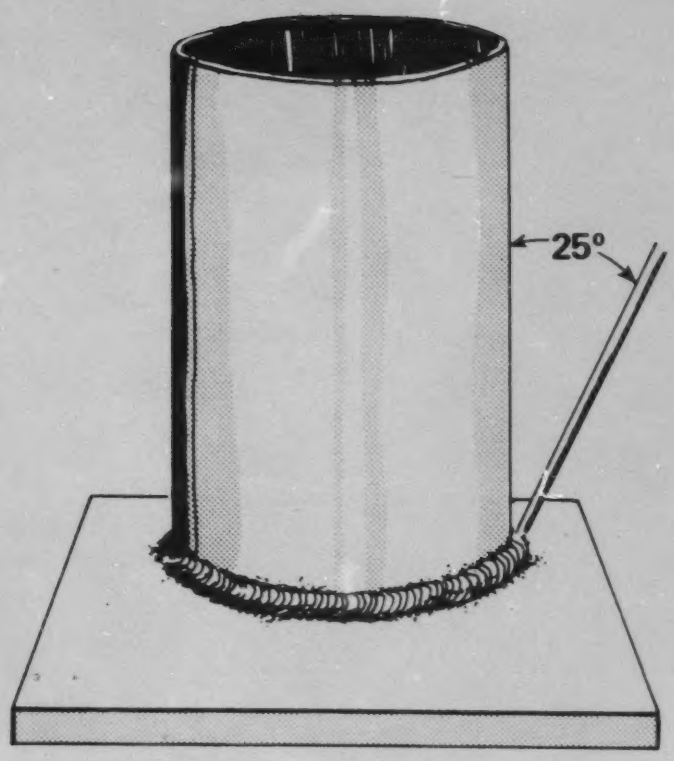
E. Strike arc and continue welding without breaking arc

F. Chip slag and brush clean

G. Turn in to instructor for grading

JOB SHEET #6

FIGURE 1



POSITION WELDING
UNIT II

TEST

1. Match terms on the right to the correct definition.

_____a. Series of overlapping stringer beads that completely cover the surface of a practice plate increasing its thickness by each subsequent layer	1. Root
_____b. Melting of metals until the molten parts unite with each other	2. Penetration
_____c. Position of welding wherein welding is performed from the underside of the joint	3. Undercutting
_____d. Gap between the members to be joined at the root of the joint	4. Crater
_____e. Running of a horizontal bead on a vertical surface	5. Pad
_____f. Deposit of small spots or particles of metal on the base metal alongside the bead	6. Horizontal position
_____g. Distance from the original surface of the base metal to that point at which fusion ceases	7. Vertical position
_____h. Condition caused by a trapped gas pocket in a weld as it solidifies	8. Weld face
_____i. Depression in the face of a weld caused by arc force; usually found at the end of a bead	9. Fusion
_____j. Exposed surface of a fusion weld	10. Spatter
_____k. Concentration of magnetic force acting on the welding arc causing it to deflect, move, or "blow" from its normal path	11. Coupon
_____l. Nonmetallic porous material entrapped in weld metal or between the weld metal and base metal	12. Arc blow
	13. Overhead position
	14. Cold lap
	15. String bead
	16. Slag inclusion
	17. Root opening
	18. Porosity

_____m. Portion of the crater left unfilled due to excessive current and the improper movement of the electrode; occurs at the edge of the bead

_____n. Beads are deposited vertically on a vertical surface; axis of the weld is vertical

_____o. That portion of a weld which is removed from the test plate to test

_____p. Weld bead made with very little rod manipulation

_____q. Bottom surface of a weld; the opposite side from which the welding was done

_____r. Piling up of weld metal due to improper starts and current adjustments causing a defect usually at the start of the weld

2. List four factors that determine proper machine adjustment.

a.

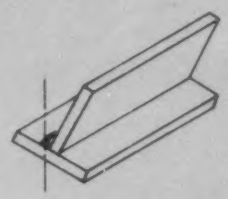
b.

c.

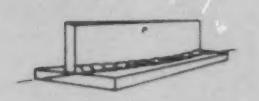
d.

3. Identify the following welding positions by writing the correct name in the blank.

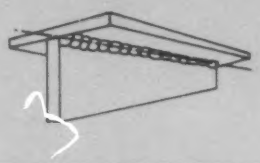
a._____



b._____



c._____



d._____

4. Select from the list reasons for removing slag from the weld by placing an "X" in the blank.

_____a. Permits better fusion of beads

_____b. Prevents gas pockets and slag inclusions from forming in bead

_____c. Improves appearance of bead

_____d. Prevents cold lap or undercutting

5. Describe in a short paragraph the importance of fusing one bead with another.

6. List four factors that determine weld quality.

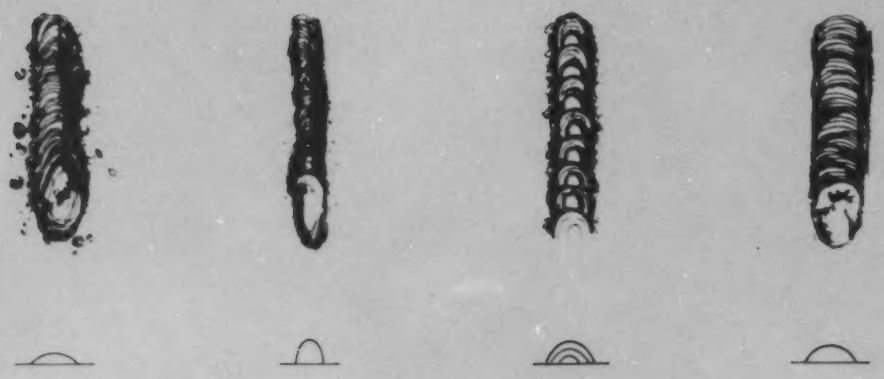
a.

b.

c.

d.

7. Identify the properly and improperly formed beads by telling the cause.



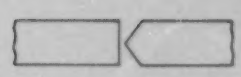
a. _____ b. _____ c. _____ d. _____

e. _____ f. _____ g. _____

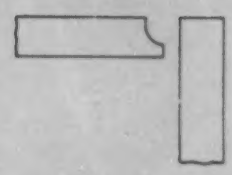
8. Discuss in a short paragraph three solutions to prevent arc blow.

9. Label the following types of groove joints.

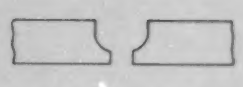
a. _____



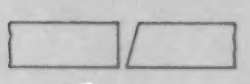
b. _____



c. _____



d. _____



e. _____

10. Demonstrate the ability to:

a. Make a pad in the horizontal position.

b. Make a single V-groove butt weld in flat position.

c. Make a single V-groove butt weld in horizontal position.

d. Make a single V-groove butt weld in vertical up position.

e. Make a single V-groove butt weld in overhead position.

f. Run a continuous bead using pine and flat plate.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

POSITION WELDING
UNIT II

ANSWERS TO TEST

1.	a. 5	g. 2	m. 3
	b. 9	h. 18	n. 7
	c. 13	i. 4	o. 11
	d. 17	j. 8	p. 15
	e. 6	k. 12	q. 1
	f. 10	l. 16	r. 14

2. Any four of the following:
   a. Length of welding cables
   b. Thickness of metal
   c. Diameter and type of electrode
   d. Welding technique used by operator
   e. Efficiency of welding machine
   f. Polarity of machine
   g. Welding position
3. a. Vertical
   b. Flat
   c. Horizontal
   d. Overhead
4. a, b, c
5. Description should include:
   a. Increases strength of weld
   b. Improves appearance of weld
   c. Improves penetration

6. a. Amperage
   b. Length of arc
   c. Speed of travel
   d. Position of electrode
7. a. Current too high
   b. Current too low
   c. Speed too fast
   d. Current, voltage, and speed normal
   e. Voltage too high
   f. Voltage too low
   g. Speed too slow
8. Discussion should include any three of the following:
   a. Reduce current
   b. Switch polarity
   c. Change current to AC
   d. Change location of ground clamp
   e. Maintain a short arc
   f. Wrap ground cable around workpiece and pass ground current through it to neutralize magnetic field
9. a. Single V
   b. Double bevel
   c. J
   d. U
   e. Single bevel
10. Performance skills evaluated to the satisfaction of the instructor.

OXYACETYLENE FUSION WELDING
UNIT III

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to demonstrate the ability to light, adjust, and turn off the oxyacetylene welding equipment, handle the equipment properly, and make welds with or without filler rod. He should be able to select proper tip size and list factors that determine the correct type of filler rod. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with oxyacetylene fusion welding to the correct definitions.
2. List ten safety rules to observe when handling oxygen, acetylene, and oxyacetylene welding equipment.
3. Identify the parts of oxyacetylene fusion welding equipment.
4. Select from a list factors that determine weld quality.
5. List properties of a good weld.
6. Select from a list factors that determine tip size in oxyacetylene welding.
7. List [illegible] factors that determine the type of filler rod to use in oxyacetylene welding.
8. State in writing the purpose of a filler rod.
9. Identify three types of oxyacetylene fusion welding flames.
10. Demonstrate the ability to:
    a. Turn on, light, adjust, and turn off the oxyacetylene welding equipment.
    b. Construct a corner weld without filler rod.
    c. Lay beads on gauge metal without filler rod.
    d. Lay beads on gauge metal with filler rod.
    e. Weld butt joints with filler rod.

OXYACETYLENE FUSION WELDING
UNIT III

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and job sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Demonstrate and discuss procedures outlined in the job sheets.

(NOTE: The instructor may want to secure films on oxyacetylene fusion welding from Curriculum and Instructional Materials Center to show to class.)

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Demonstrate the ability to accomplish the procedures outlined in the job sheets.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Oxyacetylene Welding Equipment

2. TM 2--Welding Torches

3. TM 3--Welding Regulators

4. TM 4--Oxyacetylene Fusion Welding Flames

D. Job sheets

1. Job Sheet #1--Turn On, Light, Adjust, and Turn Off Oxyacetylene Welding Equipment

2. Job Sheet #2--Construct a Corner Weld Without a Filler Rod

3. Job Sheet #3--Lay Beads on Gauge Metal Without Filler Rod

4. Job Sheet #4--Lay Beads on Gauge Metal with Filler Rod

5. Job Sheet #5--Weld Butt Joints with Filler Rod

E. Test

F. Answers to test

II. References:

A. *Smith's Instructor's Manual for a Basic Course in Oxyacetylene Brazing, Cutting, and Welding* (Form 424). Minneapolis, Minnesota: Smith Welding Equipment, Division of Tescom Corporation.

B. *Instructor's Answer Key* (Form 429). For use with *Smith's Instructor's Manual* (Form 424). Minneapolis, Minnesota: Smith Welding Equipment, Division of Tescom Corporation.

C. Phipps, Lloyd J., H. F. McColly, L. L. Scranton, and G. C. Cook. *Farm Mechanics Text and Handbook*. Danville, Illinois. The Interstate Printers and Publishers, Inc.

D. Althouse, Andrew D., Carl H. Turnquist, and William A. Bowditch. *Modern Welding*. Homewood, Illinois: Goodheart-Willcox Company, Inc., 1965.

E. *The Oxyacetylene Handbook: A Manual on Oxyacetylene Welding and Cutting Procedures*. New York: Union Carbide Corporation, Linde Division.

III. Films:

A. "Oxyacetylene Welding Equipment." Film Library, Curriculum and Instructional Materials Center, Oklahoma State Department of Vocational and Technical Education, 1515 West Sixth Street, Stillwater, Oklahoma 74074.

B. "Oxyacetylene Welding: Torch Techniques." Film Library, Curriculum and Instructional Materials Center, Oklahoma State Department of Vocational and Technical Education, 1515 West Sixth Street, Stillwater, Oklahoma 74074.

OXYACETYLENE FUSION WELDING
UNIT III

INFORMATION SHEET

I. Terms and definitions

A. Fusion welding--Joining of pieces of metal by heating the adjoining edges to the fusion or melting point and allowing them to flow or run together and then cool

B. Penetration--Distance from the original surface of the base metal to that point at which fusion ceases

C. Base metal--Metal to be welded

D. Alloy--Mixture with metallic properties; composed of two or more elements of which at least one is a metal

E. Inner cone--Inner white part of a neutral flame

F. Tack weld--Short weld used for temporarily holding metal in place

G. Backfire--Momentary burning back of the flame into the tip; flame goes out with a loud snap or pop

H. Flashback--Fire inside the torch; indicated by a hissing or squealing sound

(CAUTION: This is a very dangerous condition.)

II. Safety rules for handling oxygen, acetylene, and oxyacetylene welding equipment

A. Support oxygen and acetylene cylinders in an upright position so they cannot be tipped over

(NOTE: Acetylene gas is in a liquid state in the cylinder and should be used in the vertical position in order that acetone will not be withdrawn.)

B. Blow out cylinder valves in order to remove dust and dirt that may damage regulators

(NOTE: Be sure to crack cylinder valves for a second before attaching regulators.)

C. Release pressure adjusting screw on regulator before opening cylinder valve to prevent damage to regulator and possible injury to operator

D. Stand to the side of regulator, keeping the cylinder valve between operator and regulator while opening cylinder valve

INFORMATION SHEET

E. Open cylinder valve slowly

F. Do not use acetylene (in free state) at pressures higher than 15 psi

(NOTE: Acetylene becomes unstable at pressures above 15 psi and becomes highly explosive.)

G. Purge oxygen and acetylene passages individually before lighting torch

H. Light acetylene before opening oxygen torch valve

I. Never use oil or grease on regulators, torches, or fittings

(NOTE: Oil or grease and oxygen have a very great attraction for one another and will unite with explosive violence.)

J. Do not use oxygen as a substitute for compressed air

K. Use safety goggles, gloves, and protective clothing

(NOTE: Keep gloves, hands, and clothing free from oil and grease.)

L. Have CO_2 or dry powder type fire extinguisher available

M. Test connections for leaks with Ivory Soap suds, paintbrush, and water

N. Avoid lighting torch or welding near combustible material

O. Never open the acetylene cylinder valve more than 1/2 to 3/4 turn

P. Always operate torch in a well-ventilated place

Q. Never weld on containers that have been used for combustible materials

R. Avoid breathing toxic fumes when welding

Example: Galvanized metal

S. Place steel caps on all gas cylinders when they are being moved or stored to protect the valves

T. Shut off cylinder valves when not in use for any length of time to reduce the possibility of leakage and strain on equipment

U. Turn off acetylene torch valve first in order that the flame will go out immediately

V. Never cut or weld near concrete

INFORMATION SHEET

W. Always weld or cut at least five feet from cylinder

X. Always protect hoses from hot metal, rupture, or mechanical damage

Y. Always light torch with friction lighter

Z. Never leave a burning torch unattended

(NOTE: The instructor may want to add other safety rules.)

III. Oxyacetylene welding equipment (Transparencies 1, 2, and 3)

A. Acetylene cylinder

B. Acetylene cylinder valve

C. Acetylene fitting

D. Acetylene regulator

E. Oxygen cylinder

F. Oxygen cylinder valve

G. Oxygen fitting

H. Oxygen regulator

I. Oxygen torch valve

J. Welding torch body

K. Acetylene torch valve

L. Welding tip

M. Welding goggles

N. Welding gloves

O. Safety chain

P. Flint lighter

Q. Cylinder truck

INFORMATION SHEET

IV. Factors that determine weld quality

A. Proper flame adjustment

B. Angle of tip

C. Distance from work

D. Speed of travel

E. Movement of tip

V. Properties of a good weld

A. Consistent width

B. Straightness

C. Slightly crowned

D. Fused into base metal

E. Clean appearance

VI. Factors that determine tip size

A. Thickness of metal

B. Size of welding rod

(NOTE: Always use manufacturer's recommendation on tip size.)

VII. Factors that determine filler rod selection

A. Rod with similar properties as base metal

B. Thickness of metal

(NOTE: A general rule is to use a rod with a diameter equal to the thickness of the base metal.)

VIII. Purpose of filler rod--To add strength to weld or joint

IX. Oxyacetylene welding flames (Transparency 4)

A. Carburizing flame

1. Contains an excess of acetylene

(NOTE: An acetylene feather is visible on the inner cone.)

INFORMATION SHEET

2. Recommended flame for welding cast iron

3. Introduces carbon into weld; causes hardening of the metal

B. Oxiding flame

1. Burns an excess of oxygen

2. Identified by short inner cone

3. Oxidizes the metal, causing it to harden and become brittle

4. Not recommended for welding of most metals

5. Is the hottest flame

6. Recommended for brazing when slightly oxidized

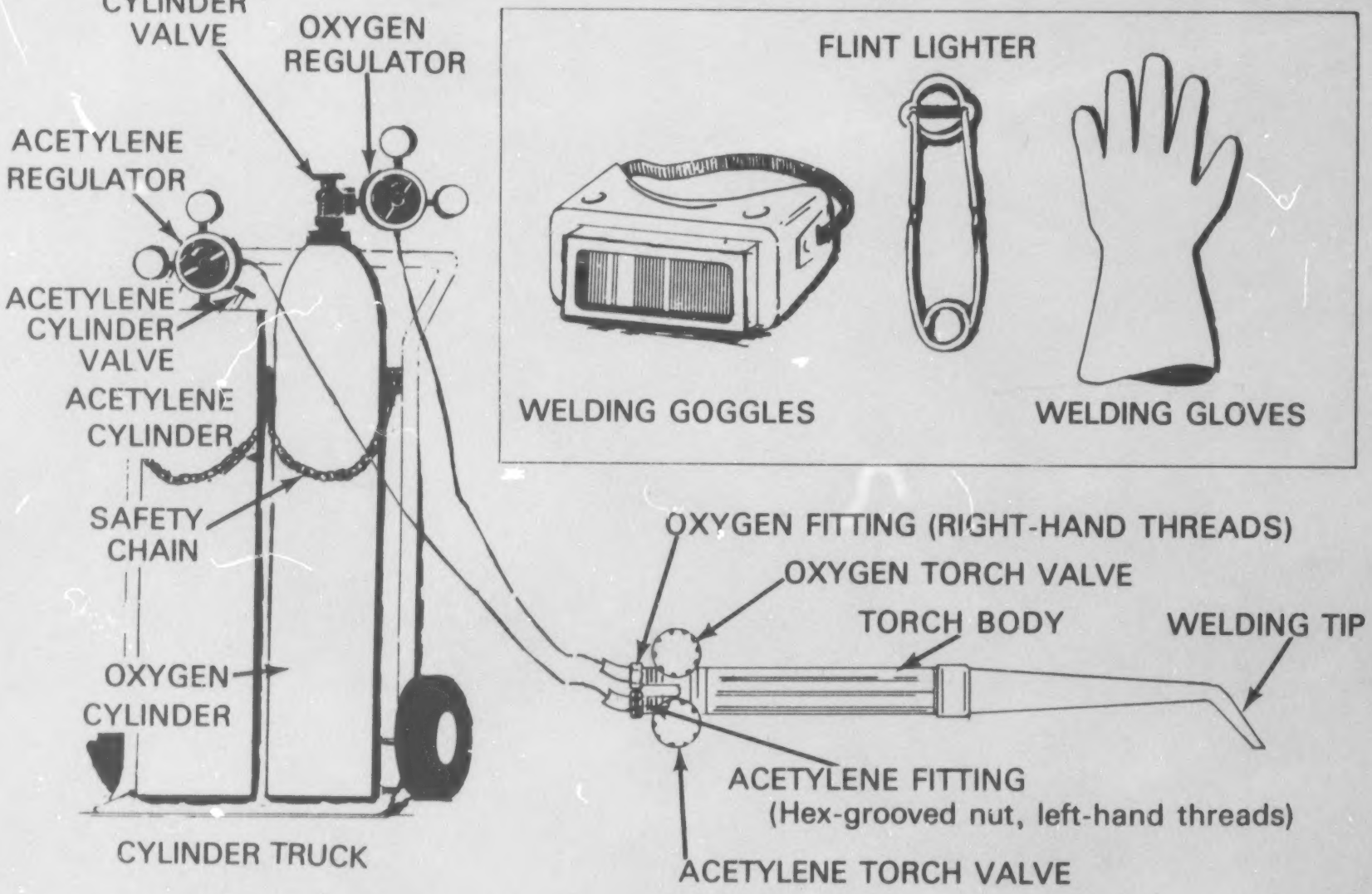
C. Neutral flame

1. Burns equal parts of oxygen and acetylene

2. Identified by clear, well-defined white inner cone

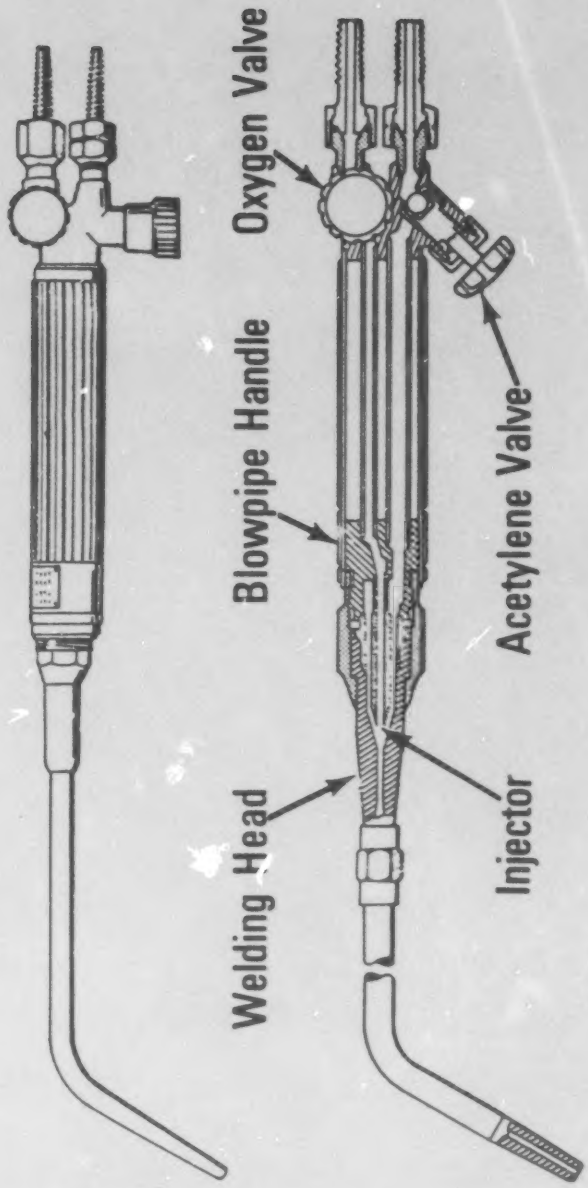
3. Burns at a temperature of approximately 5950°F

Oxyacetylene Fusion Welding Equipment



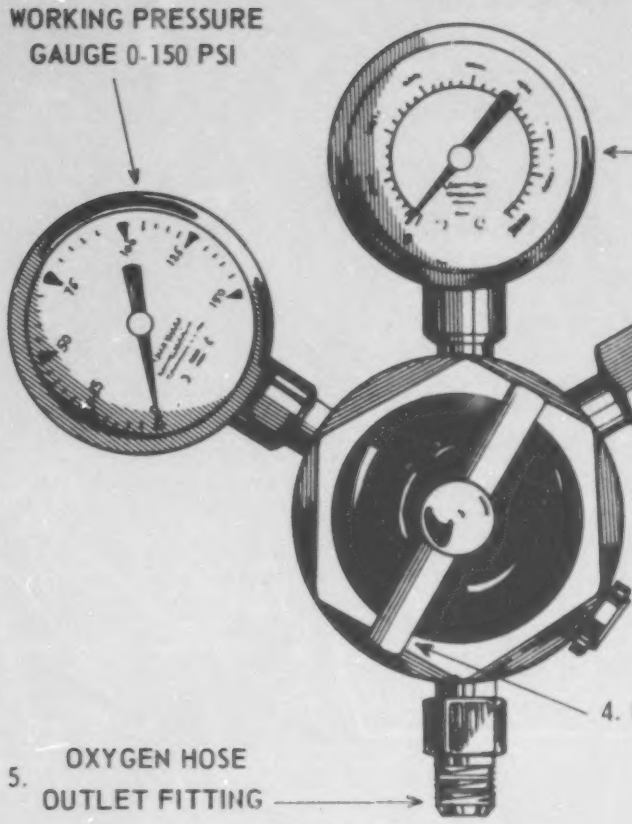
00088

Welding Torches

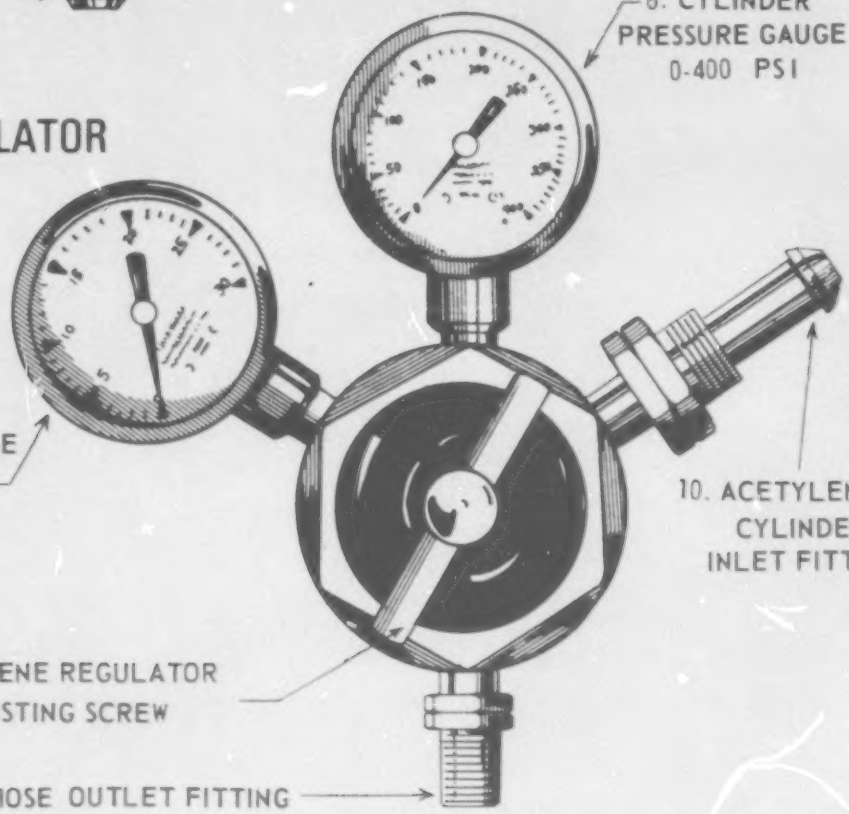


Welding Regulators

A. OXYGEN REGULATOR GAUGES



B. ACETYLENE REGULATOR



Oxyacetylene Fusion Welding Flames

Carburizing Flame

Neutral Flame

Oxidizing Flame

OXYACETYLENE FUSION WELDING
UNIT III

JOB SHEET #1--TURN ON, LIGHT, ADJUST, AND TURN OFF OXYACETYLENE WELDING EQUIPMENT

I. Tools, equipment, and materials

A. Oxygen cylinder

B. Acetylene cylinder

C. Hoses

D. Oxygen and acetylene regulators

E. Torch body and welding tips

F. Cylinder holder and hose rack

G. Flint lighter

H. Welding goggles with #5 lens

I. Gloves

II. Procedure for turning on and lighting

A. Check all cylinder, regulator, and torch valves to make sure they are turned off

B. Open acetylene cylinder valve 1/2 to 3/4 of a turn

(CAUTION: Never open more than 1 1/2 turns.)

C. Open acetylene valve on torch one turn to purge line

D. Turn acetylene regulator pressure adjusting screw clockwise until desired working pressure is reached

(NOTE: The working pressure is determined by the size of the tip.)

E. Close acetylene valve on torch

F. Open oxygen cylinder valve all the way and tighten in open position

G. Open oxygen torch valve one turn

H. Turn oxygen regulator pressure adjusting screw clockwise until desired pressure is reached

(NOTE: The working pressure is determined by the size of the tip.)

JOB SHEET #1

I. Close oxygen valve on torch

J. Open acetylene valve on torch 1/4 turn

K. Light the torch with flint lighter and adjust until smoke on flame clears

L. Open oxygen torch valve and adjust to a neutral flame with a tiny trace of feather on the inner cone

III. Procedure for adjusting welding torch for the three types of flames--Start with a neutral flame

A. To produce a carburizing flame--Reduce the supply of oxygen by slowly closing the oxygen torch valve until an excess acetylene feather is produced

B. To produce an oxidizing flame--Increase the supply of oxygen by slowly opening the oxygen torch valve until a short, white inner cone is produced

IV. Procedure for turning off the torch and oxyacetylene welding unit

A. Close acetylene torch valve

B. Close oxygen torch valve

C. Close acetylene cylinder valve

D. Close oxygen cylinder valve

E. Open acetylene torch valve

(NOTE: When gauges reach 0, release acetylene regulator pressure adjusting screw and close torch valve.)

F. Open oxygen valve on torch

(NOTE: When gauges reach 0, release oxygen regulator pressure adjusting screw and close torch valve.)

(CAUTION: Do not open the acetylene and oxygen torch valves at the same time.)

G. Place torch and hoses on hanger or brackets

OXYACETYLENE FUSION WELDING
UNIT III

JOB SHEET #2--CONSTRUCT A CORNER WELD WITHOUT A FILLER ROD

I. Tools, materials, and equipment

A. Oxyacetylene welding unit

B. Welding tip (according to manufacturer's recommendations)

C. Gloves

D. Goggles

E. Pliers

F. Wire brush

G. Flint lighter

H. Fire brick

I. Mild steel, 2 strips of 16 gauge, 1 1/4" x 6"

II. Procedure

A. Prepare metal for welding

B. Place metal in welding position

C. Turn on oxyacetylene unit

D. Set working pressure (according to manufacturer's recommendations)

E. Light torch and adjust to a neutral flame with very slight feather

F. Tack weld metal in position

G. Place inner cone about 1/16" to 1/8" from plate

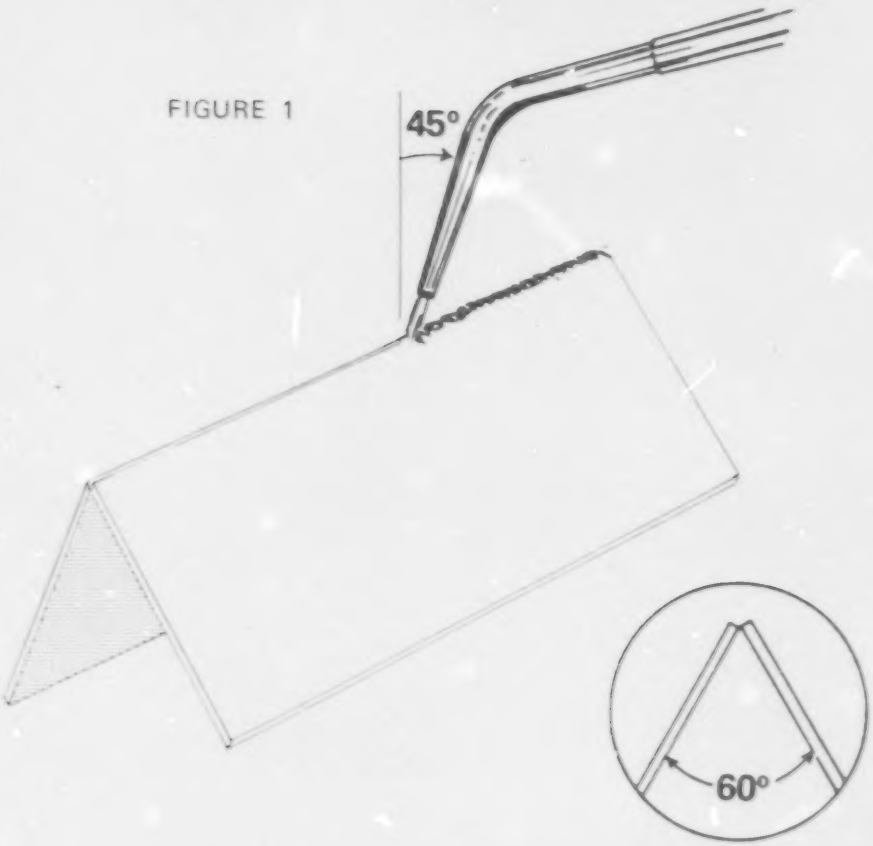
H. Do not begin travel until you have established a molten puddle

I. Begin welding at right end

JOB SHEET #2

J. Hold tip vertically at 45° angle from direction of travel (Figure 1)

FIGURE 1



K. Slowly move flame down the joint, forming puddle as you travel from right to left

L. Examine welded joint for good bead characteristics and penetration

M. Repeat process until instructor gives permission to go on to next job

OXYACETYLENE FUSION WELDING
UNIT III

JOB SHEET #3--LAY BEADS ON GAUGE METAL WITHOUT FILLER ROD

I. Tools, materials, and equipment

A. Oxyacetylene welding unit

B. Welding tip (according to manufacturer's recommendations)

C. Gloves

D. Goggles

E. Pliers

F. Wire brush

G. Flint lighter

H. Fire brick

I. Mild steel, 1 strip of 16 gauge, 1 1/4" x 6"

II. Procedure

A. Prepare metal for welding

B. Place metal in welding position

C. Turn on oxyacetylene unit

D. Set working pressure (according to manufacturer's recommendations)

E. Light torch and adjust to a neutral flame

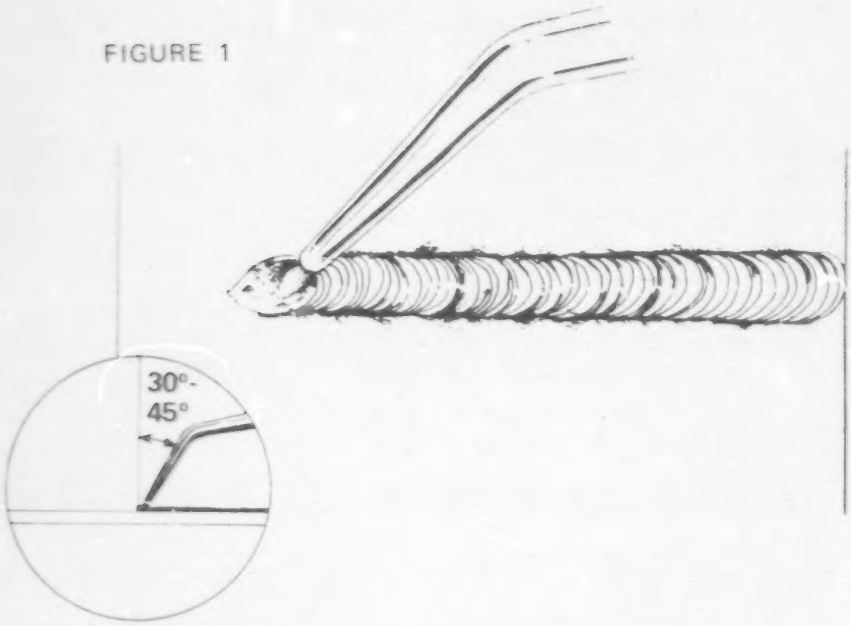
F. Place inner cone about 1/16" to 1/8" from metal

G. Do not begin travel until you have established a molten puddle

JOB SHEET #3

H. Hold torch 30° to 45° from center in direction of travel (Figure 1)

FIGURE 1



I. Slowly move the torch forward allowing the metal to melt

J. Repeat process until instructor gives permission to go on to next job

OXYACETYLENE FUSION WELDING
UNIT III

JOB SHEET #4--LAY BEADS ON GAUGE METAL WITH FILLER ROD

I. Tools, materials, and equipment

A. Oxyacetylene welding unit

B. Welding tip (according to manufacturer's recommendations)

C. Gloves

D. Goggles

E. Pliers

F. Wire brush

G. Flint lighter

H. Fire brick

I. Mild steel, 1 strip of 16 gauge, 1 1/4" x 6"

J. Mild steel filler rod (according to manufacturer's recommendations)

II. Procedure

A. Prepare metal for welding

B. Place metal in welding position

C. Turn on oxyacetylene unit

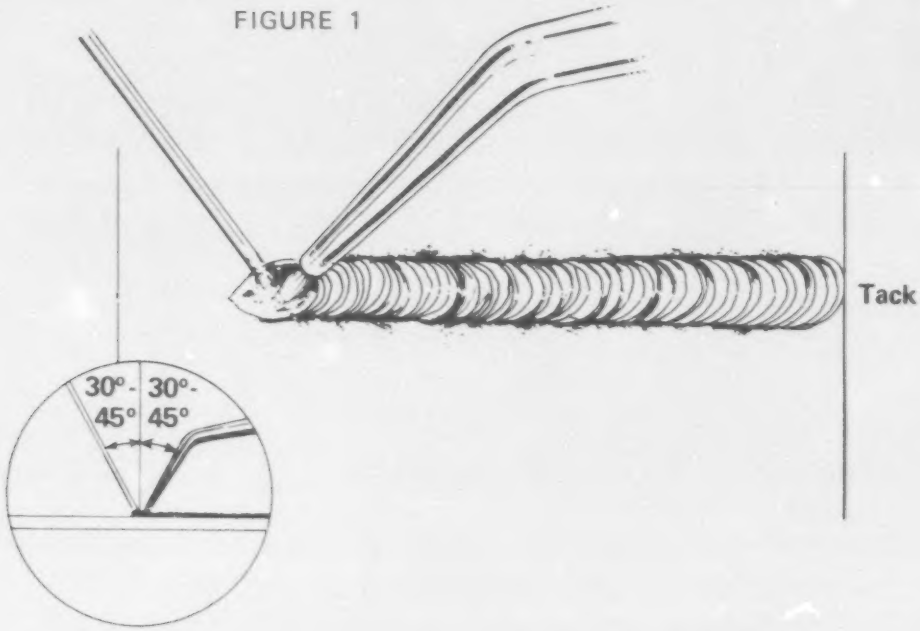
D. Set working pressure (according to manufacturer's recommendations)

E. Light torch and adjust to a neutral flame

JOB SHEET #4

F. Hold torch 30° to 45° from center (Figure 1)

FIGURE 1



G. Place inner cone about 1/16" to 1/8" from surface of puddle

H. Do not begin travel until you have established a molten puddle

I. Add filler rod to front edge of puddle in front of torch

J. Move puddle forward with torch and allow puddle to form in base metal

K. Add rod to front edge of puddle and withdraw rod as you move puddle forward

L. Keep puddle the same size and shape for the entire length of the bead

M. Show bead to instructor when completed

OXYACETYLENE FUSION WELDING
UNIT III

JOB SHEET #5--WELD BUTT JOINTS WITH FILLER ROD

I. Tools, materials, and equipment

A. Oxyacetylene welding unit

B. Welding tip (according to manufacturer's recommendations)

C. Gloves

D. Goggles

E. Pliers

F. Wire brush

G. Flint lighter

H. Fire brick

I. Mild steel, 2 strips of 16 gauge, 1 1/4" x 6"

J. Mild steel filler rod (according to manufacturer's recommendations)

II. Procedure

A. Prepare metal for welding

B. Place metal in welding position

C. Turn on oxyacetylene unit

D. Set working pressure (according to manufacturer's recommendations)

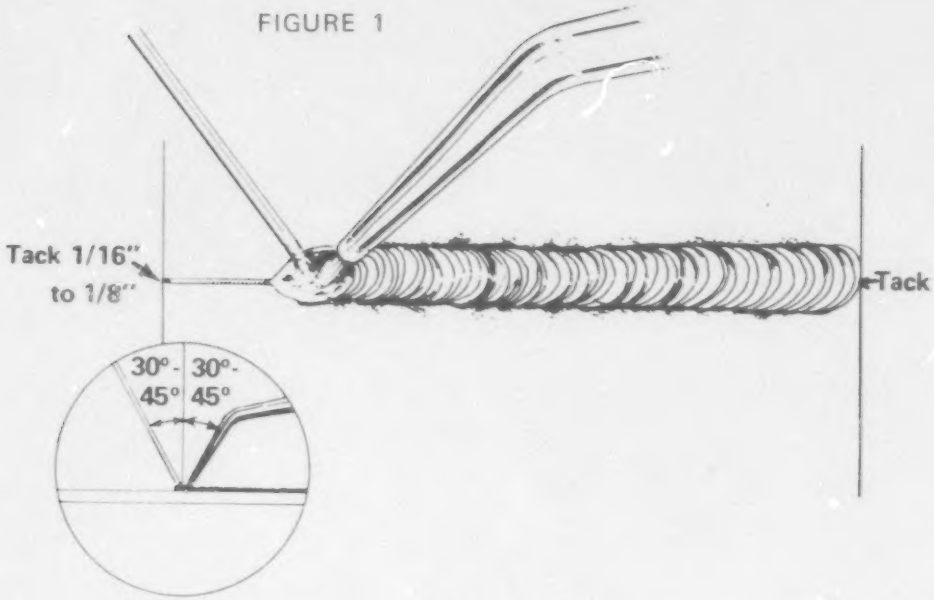
E. Light torch and adjust to a neutral flame

F. Tack weld metal together at both ends of joint

JOB SHEET #5

G. Hold torch 30° to 45° from center (Figure 1)

FIGURE 1



H. Do not begin travel until you have established a molten puddle

I. Place inner cone about 1/16" to 1/8" from surface of puddle

J. Add filler rod to front edge of puddle in front of torch

K. Move puddle forward with torch and allow puddle to form in base metal

L. Add rod to front edge of puddle and withdraw rod as you move puddle forward

M. Keep puddle the same size and shape for the entire length of the bead

OXYACETYLENE FUSION WELDING
UNIT III

TEST

1. Match the terms on the right to the correct definition.

_____a. Metal to be welded	1. Tack weld
_____b. Fire inside the torch; indicated by a hissing or squealing sound	2. Flashback
_____c. Joining of pieces of metal by heating the adjoining edges to the fusion or melting point and allowing them to flow or run together and then cool	3. Backfire
_____d. Inner white part of a neutral flame	4. Inner cone
_____e. Distance from the original surface of the base metal to that point at which fusion ceases	5. Alloy
_____f. Short weld used for temporarily holding metal in place	6. Base metal
_____g. Mixture with metallic properties; composed of two or more elements of which at least one is a metal	7. Penetration
_____h. Momentary burning back of the flame into the tip; flame goes out with a loud snap or pop	8. Fusion welding

2. List ten safety rules to observe when handling oxygen, acetylene, and oxyacetylene welding equipment.

a.

b.

c.

d.

e.

f.

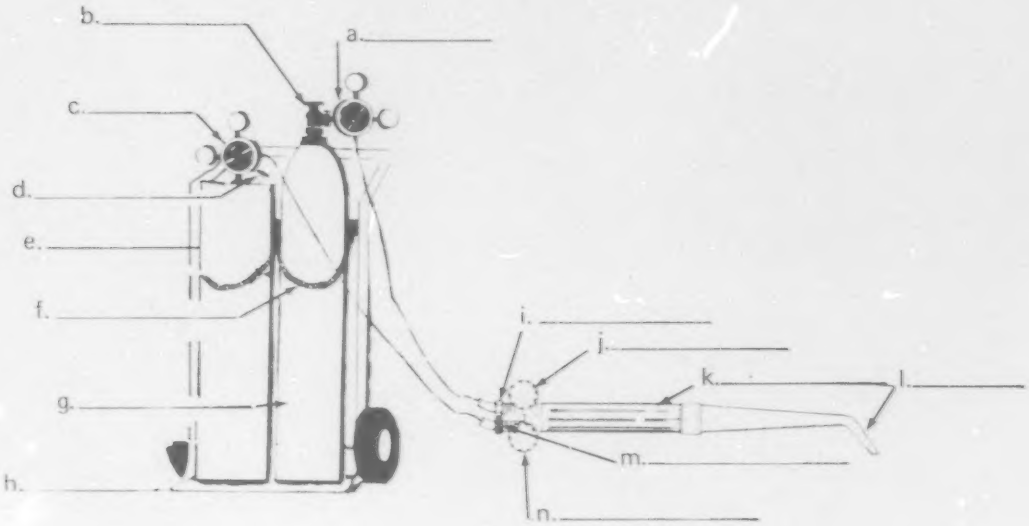
g.

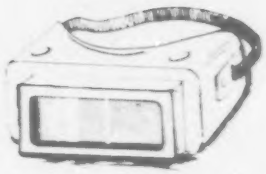
h.

i.

j.

3. Identify the oxyacetylene fusion welding equipment illustrated below by writing the correct name in the blank.





o.

p.

q.

4. Select from the list below factors that determine weld quality by placing an "X" in the blank.

_____a. Proper flame adjustment

_____b. Angle of tip

_____c. Distance from work

_____d. Speed of travel

_____e. Movement of tip

_____f. Thickness of metal

_____g. Width of bead

5. List three properties of a good weld.

a.

b.

c.

6. Select from the list below factors that determine tip size by placing an "X" in the blank.

_____a. Size of welding rod

_____b. Temperature of metal

_____c. Thickness of metal

_____d. Distance to work

7. List two factors that determine the type of filler rod to use in oxyacetylene welding.

a.

b.

8. State in writing the purpose of a filler rod.

9. Identify the three types of flames illustrated below by writing the correct name in the blank.

a._____

b._____

c._____

10. Demonstrate the ability to:

a. Turn on, light, adjust, and turn off the oxyacetylene welding equipment.

b. Construct a corner weld without filler rod.

c. Lay beads on gauge metal without filler rod.

d. Lay beads on gauge metal with filler rod.

e. Weld butt joints with filler rod.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

OXYACETYLENE FUSION WELDING
UNIT III

ANSWERS TO TEST

1. a. 6 e. 7
   b. 2 f. 1
   c. 8 g. 5
   d. 4 h. 3

2. Any ten of the following:

   a. Support oxygen and acetylene cylinders in an upright position so they cannot be tipped over

   b. Blow out cylinder valves in order to remove dust and dirt that may damage regulators

   c. Release pressure adjusting screw on regulator before opening cylinder valve to prevent damage to regulator and possible injury to operator

   d. Stand to the side of regulator, keeping the cylinder valve between operator and regulator while opening cylinder valve

   e. Open cylinder valve slowly

   f. Do not use acetylene (in free state) at pressures higher than 15 psi

   g. Purge oxygen and acetylene passages individually before lighting torch

   h. Light acetylene before opening oxygen torch valve

   i. Never use oil or grease on regulator, torches, or fittings

   j. Do not use oxygen as a substitute for compressed air

   k. Use safety goggles, gloves, and protective clothing

   l. Have CO_2 or dry powder type fire extinguisher available

   m. Test connections for leaks with Ivory Soap suds, paintbrush, and water

   n. Avoid lighting torch or welding near combustible material

   o. Never open acetylene cylinder valve more than 1/2 to 3/4 turn

   p. Always operate torch in a well-ventilated place

q. Never weld on containers that have been used for combustible materials

r. Avoid breathing toxic fumes when welding

s. Place steel caps on all gas cylinders when they are being moved or stored to protect the valves

t. Shut off cylinder valves when not in use for any length of time to reduce the possibility of leakage and strain on equipment

u. Turn off acetylene torch valve first in order that the flame will go out immediately

v. Never cut or weld near concrete

w. Always weld or cut at least five feet from cylinder

x. Always protect hoses from hot metal, rupture, or mechanical damage

y. Always light torch with friction lighter

z. Never leave a burning torch unattended

(NOTE: Instructor may want to add others.)

3. a. Oxygen regulator

b. Oxygen cylinder valve

c. Acetylene regulator

d. Acetylene cylinder valve

e. Acetylene cylinder

f. Safety chain

g. Oxygen cylinder

h. Cylinder truck

i. Oxygen fitting

j. Oxygen torch valve

k. Torch body

l. Welding tip

m. Acetylene fitting

n. Acetylene torch valve

o. Welding goggles

p. Flint lighter

q. Welding gloves

4. a, b, c, d, e

5. Any three of the following:

a. Consistent width

b. Straightness

c. Slightly crowned

d. Fused into base metal

e. Clean appearance

6. a, c

7. a. Rod with similar properties as base metal

b. Thickness of metal

8. To add strength to weld or joint

9. a. Carburizing

b. Oxidizing

c. Neutral

10. Performance skills evaluated to the satisfaction of the instructor.

OXYACETYLENE BRAZE WELDING
UNIT IV

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to describe the differences between braze welding and fusion welding and list advantages and disadvantages of braze welding. He should also be able to describe the reaction when adding bronze to base metal that is too hot, too cold, or correct. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with brazing to the correct definitions.
2. List three advantages and three disadvantages of braze welding.
3. State in writing the importance of having a chemically clean metal surface in braze welding.
4. Select from a list methods for removing oxides from a clean metal surface.
5. Describe the differences between braze welding and fusion welding.
6. List five purposes for using flux.
7. Describe the reaction of molten bronze when the temperature of the base metal is too hot, too cold, and correct.
8. Demonstrate the ability to braze weld a square groove butt joint.

OXYACETYLENE BRAZE WELDING
UNIT IV

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and job sheets.

C. Make transparency.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Demonstrate and discuss procedure outlined in the job sheet.

(NOTE: The instructor may want to secure the film on braze welding from a local welding supplier or the Curriculum and Instructional Materials Center to show to the class.)

G. Give test.

II. Student:

A. Read objective sheet.

B. Study information sheet.

C. Demonstrate the ability to accomplish the procedure outlined in the job sheet.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency master: TM 1--Braze Welding a Butt Joint

D. Job Sheet #1--Braze Weld a Square Groove Butt Joint

E. Test

F. Answers to test

II. References:

A. *The Oxyacetylene Handbook: A Manual on Oxyacetylene Welding and Cutting Procedures.* New York: Union Carbide Corporation, Linde Division, 1960.

B. Althouse, Andrew D., Carl H. Quinquist, and William A. Bowditch. *Modern Welding.* Homewood, Illinois: Goodheart-Wilcox Company, Inc., 1965.

C. Giachino, J.W., William Weeks, and Elmer Brune. *Welding Skills and Practices.* Chicago, Illinois: American Technical Society, 1967.

III. Film--"Oxyacetylene Welding: Torch Techniques." Film Library, Curriculum and Instructional Materials Center, Oklahoma State Department of Vocational and Technical Education, 1515 West Sixth Street, Stillwater, Oklahoma 74074.

OXYACETYLENE BRAZE WELDING
UNIT IV

INFORMATION SHEET

I. Terms and definitions

A. Braze welding--Heating the base metal to a dull red color and depositing a head over the seam (joint) with a bronze filler rod; the base metal is not melted (Transparency 1)

B. Malleability--Property of metals which allows them to be bent or permanently distorted without rupture; opposite of brittleness

C. Ductile--Capable of being drawn or stretched out

D. Tinning operation--Melting a small amount of bronze rod onto the surface and allowing it to spread along the entire seam (joint)

(NOTE: It is this flow of the thin film of bronze which is known as *tinning.*)

E. Flux--Chemical used to clean metals and to promote fusion during the welding process

II. Advantages and disadvantages of braze welding

A. Advantages

1. Provides less chance of destroying main characteristics of base metal since it is not heated to a molten condition

2. Consumes less gas

3. Can be used on thin metals

4. Used on malleable castings

5. Increases speed of joining metals

6. May be used to join different kinds of metals

B. Disadvantages

1. Cannot be used on metal where stress is a factor

2. Bronze rod is expensive to use

3. Not recommended for parts which are raised to temperatures higher than the melting point of bronze, either in service or during heat treatment

INFORMATION SHEET

4. Bronze will lose its strength at temperatures above 500°F

5. Bronze may have corrosion-resistant properties which differ from those of the base metal being used

III. Importance of a chemically clean surface in braze welding

A. Ensure the molten bronze will stick to the base metal

B. Have a stronger bond on base metal

C. Allow bronze to flow smoothly and evenly over entire weld area

IV. Methods for removing oxides

A. Mechanical means

1. Wire brush

2. Grinder

B. Chemical means--Flux

(NOTE: Both methods should be used to completely remove the oxides.)

V. Differences between braze welding and fusion welding

A. Braze welding

1. Base metal is not melted

(NOTE: Base metal is heated only to a dull red color.)

2. An alloy rod is used to lay a thin coat of bronze along the seam

B. Fusion welding

1. Base metal is melted and joined

2. Rod with similar characteristics of base metal must be used

VI. Purposes for using flux

A. Clean the base metal chemically

B. Prevent oxidation of filler metal

C. Float and remove oxides already present

D. Increase flow of filler metal

INFORMATION SHEET

E. Increase the ability of filler metal to adhere to the base metal

F. Bring the filler metal into immediate contact with metals being joined

G. Permit the filler metal to penetrate the pores of the base metal

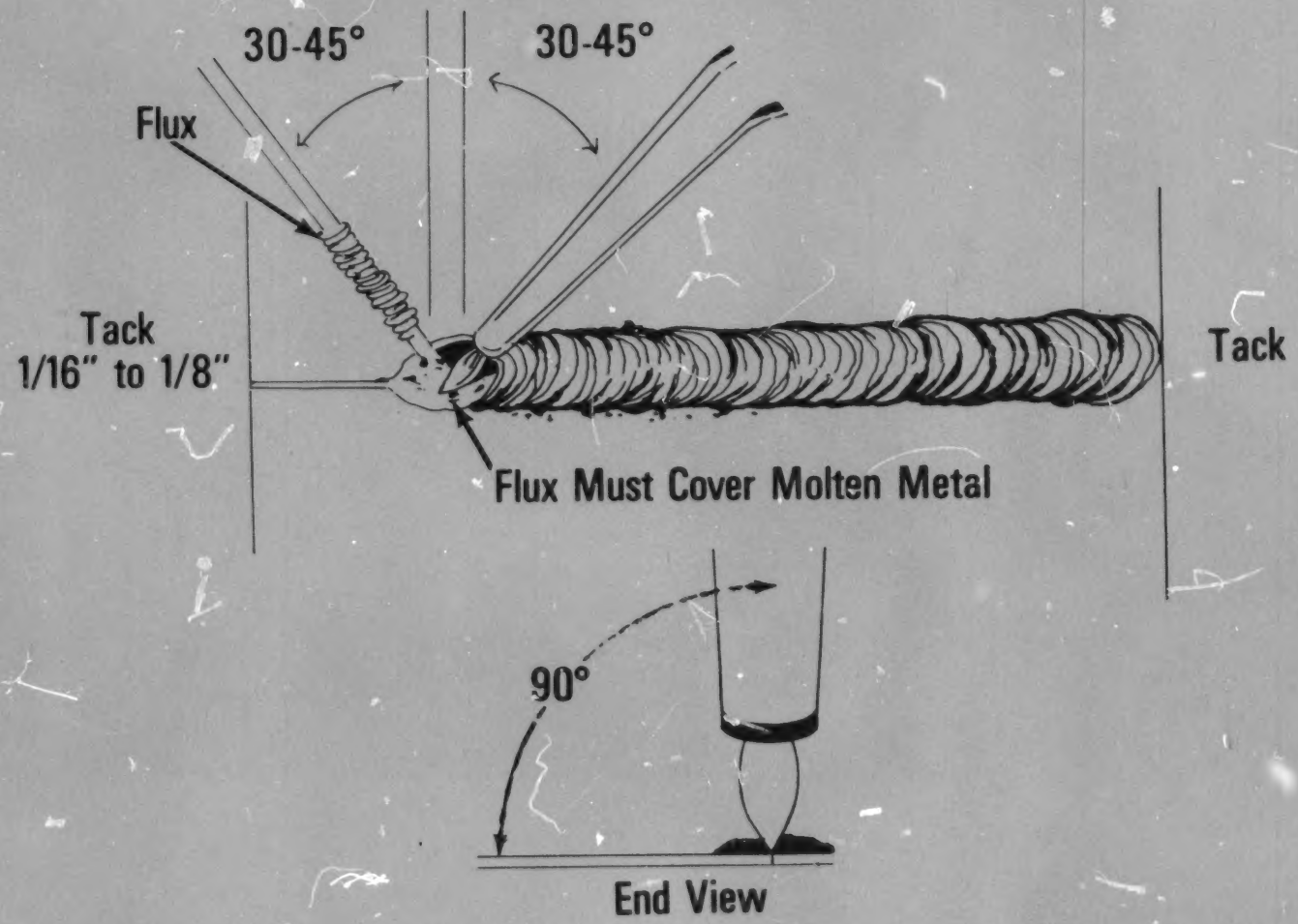
VII. Reaction of molten bronze at different temperatures

A. Too hot--The molten bronze will tend to boil and form little balls

B. Too cool--The molten bronze will form into drops rather than flowing evenly over the surface

C. Correct--The molten bronze will spread evenly and flow over a considerable area

Braze Welding A Butt Joint



00515

OXYACETYLENE BRAZE WELDING
UNIT IV

JOB SHEET #1--BRAZE WELD A SQUARE GROOVE BUTT JOINT

I. Tools, equipment, and materials

A. Oxyacetylene welding unit

B. Gloves

C. Safety glasses

D. Goggles

E. Welding tip (according to manufacturer's recommendations.)

F. Wire brush

G. Flint lighter

H. Fire brick

I. Mild steel, 2 strips 1/8" thick, 1 1/4" x 6"

J. Bronze filler rod (use according to manufacturer's recommendations)

K. Welding flux

III. Procedure

A. Clean metal

B. Place metal in brazing position, 1/16" to 1/8" apart

C. Turn on oxyacetylene unit

D. Adjust proper working pressure of oxygen and acetylene (use manufacturer's recommendations)

E. Place metal on fire brick

(NOTE: Do not lay metal flat on brick. Arrange metal so a small space will be between the base metal and the fire brick.)

F. Light and adjust torch to a neutral or slightly oxidizing flame

G. Preheat the end of the brazing rod and dip in the flux or use fluxed rod

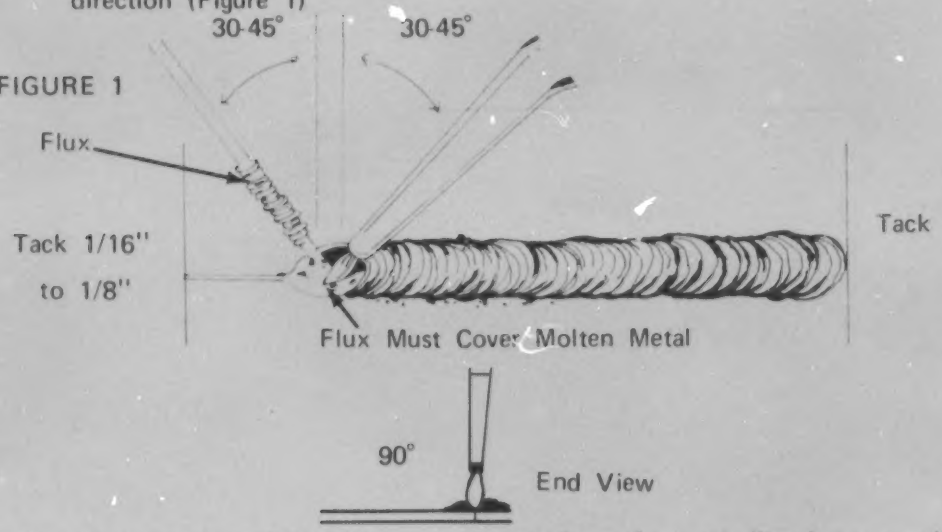
H. Tack metal in place using braze filler metal

JOB SHEET #1

I. Heat the surface of the weld area slightly

J. Hold torch 30° to 45° vertically; hold filler rod at same angle in opposite direction (Figure 1)

FIGURE 1



K. Melt a small amount of bronze rod onto the surface and allow it to spread along the entire seam when a cherry red color occurs

L. Start depositing the proper size bead when the base metal is tinned sufficiently

(NOTE: When metal is not hot enough, the bronze will form into drops; when metal is too hot, bronze tends to boil.)

M. Complete the weld and practice doing other welds

N. Inspect weld; then check with instructor

OXYACETYLENE BRAZE WELDING
UNIT IV

TEST

1. Match terms on the right to the correct definition.

_____a. Capable of being drawn or stretched out	1. Flux
_____b. Chemical used to clean metals and to promote fusion during the welding process	2. Braze welding
_____c. Property of metals which allows them to be bent or permanently distorted without rupture; opposite of brittleness	3. Malleability
_____d. Heating the base metal to a dull red color and depositing a head over the seam (joint) with bronze filler rod; the base metal is not melted	4. Tinning operation
_____e. Melting a small amount of bronze rod onto the surface and allowing it to spread along the entire seam (joint)	5. Ductile

2. List three advantages and three disadvantages of braze welding.

   a. Advantages

      1)

      2)

      3)

   b. Disadvantages

      1)

      2)

      3)

3. State in writing the importance of having a chemically clean metal surface in braze welding.

4. Select from the list below methods for removing oxides from a clean metal surface by placing an "X" in the blank.

_____a. Wire brush

_____b. Hammer

_____c. Acid

_____d. Grinder

_____e. Flux

_____f. Water

5. Describe the differences between braze welding and fusion welding.

6. List five purposes for using flux.

a.

b.

c.

d.

e.

7. Describe the reactions of molten bronze when the temperature is:

a. Too hot

b. Too cool

c. Correct

8. Demonstrate the ability to braze weld a square groove butt joint.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

OXYACETYLENE BRAZE WELDING
UNIT IV

ANSWERS TO TEST

1. a. 5

   b. 1

   c. 3

   d. 2

   e. 4

2. Any three from each group:

   a. Advantages

      1. Provides less chance of destroying main characteristics of base metal since it is not heated to a molten condition

      2. Consumes less gas

      3. Can be used on thin metals

      4. Used on malleable castings

      5. Increase speed of joining metals

      6. May be used to join different kinds of metals

   b. Disadvantages

      1. Cannot be used on metal where stress is a factor

      2. Bronze rod is expensive to use

      3. Not recommended for parts which are raised to temperatures higher than the melting point of bronze, either in service or during heat treatment

      4. Bronze will lose its strength at temperatures above 500°F

      5. Bronze may have corrosion-resistant properties which differ from those of the base metal being used

3. Discussion should include:

   a. Ensure the molten bronze will stick to the base metal

   b. Have a stronger bond on base metal

   c. Allow bronze to flow smoothly and evenly over entire weld area

4. a, d, e

5. Description should include:

   a. Braze welding

      1. Base metal is not melted

      2. An alloy rod is used to lay a thin coat of bronze along the seam

   b. Fusion welding

      1. Base metal is melted and joined

      2. Rod with similar characteristics of base metal must be used

6. Any five of the following:

   a. Clean the base metal chemically

   b. Prevent oxidation of filler metal

   c. Float and remove oxides already present

   d. Increase flow of filler metal

   e. Increase ability of filler metal to adhere to the base metal

   f. Bring the filler metal into immediate contact with metals being joined

   g. Permit the filler metal to penetrate the pores of the base metal

7. Description should include:

   a. Too hot--The molten bronze will tend to boil and form little balls

   b. Too cool--The molten bronze will form into drops rather than flowing evenly over the surface

   c. Correct--The molten bronze will spread evenly and flow over a considerable area

8. Performance skills evaluated to the satisfaction of the instructor.

BILL OF MATERIAL
UNIT V

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to complete a bill of material for various projects. He should also be able to calculate problems in determining board feet and costs of various materials. This knowledge will be evidenced by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with bill of material to the correct definitions.
2. Match the units of measure by which various materials are sold to the correct materials.
3. Select from a list basic measurements in width and length by which most lumber is sold.
4. Identify the components of a bill of material.
5. Match symbols used in lumber selection to the correct descriptions.
6. State the rule for calculating board feet.
7. Calculate problems determining board feet.
8. Calculate problems determining costs of various materials.
9. Complete a bill of material.

BILL OF MATERIAL
UNIT V

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and assignment sheets.

C. Make transparency.

D. Discuss terminal and specific objectives.

E. Discuss information and assignment sheets.

F. Require each student to complete a bill of material for each project he constructs in the shop.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Complete all activities outlined on assignment sheets.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency master: TM 1--Components of a Bill of Material

D. Assignment sheets

1. Assignment Sheet #1--Calculate Board Feet

2. Assignment Sheet #2--Calculate Cost of Various Materials

3. Assignment Sheet #3--Complete a Bill of Material

E. Answers to assignment sheets

F. Test

G. Answers to test

II. References:

A. Jones, Mack M. *Shopwork on the Farm.* New York: McGraw-Hill Book Company, 1955.

B. Phipps, Lloyd J., H. F. McColly, L. L. Scranton, and G.C. Cook. *Farm Mechanics Text and Handbook.* Danville, Illinois: Interstate Publishers and Printers.

C. *Steel Reference Book.* Standard Steel Company, 1400 E. Reno, Oklahoma City, Oklahoma.

BILL OF MATERIAL
UNIT V

INFORMATION SHEET

I. Terms and definitions

A. Bill of material--Itemized list of the number and kind of pieces needed and the dimensions of each for the construction of a project

B. Board foot--Piece of lumber one inch thick, 12 inches long, and 12 inches wide

C. Running foot--Foot length of a material regardless of thickness and width

D. Square foot--Equal to a 12-inch by 12-inch surface regardless of thickness

E. Cubic foot--Measurement 12 inches long by 12 inches wide and 12 inches thick

F. Square--Unit of measurement equal to 100 square feet of material

G. Surfaced lumber--Lumber that has been surfaced by running through a planer

H. Rough stock--Lumber that has been sawed to dimension but not planed; usually thicker and wider

II. Units of measure for various materials

A. Board foot--Lumber

B. Running foot--Molding, some steel rods, chain, cable

C. Square foot--Some steel products

(NOTE: Steel priced by the square foot generally is calculated from weight per square foot.)

D. Square--Metal siding, roofing sheet iron, shingles

E. Bundle--Lathe, sometimes shingles when a square is broken

(NOTE: Four bundles of standard 16-inch wood shingles make a square. Three bundles of asphalt shingles make a square.)

F. Weight--Steel

(NOTE: Practically all metals are priced per pound.)

INFORMATION SHEET

III. Basic measurements of lumber in width and length

A. Width

1. 4 inches
2. 6 inches
3. 8 inches
4. 10 inches
5. 12 inches

B. Length

1. 6 feet
2. 8 feet
3. 10 feet
4. 12 feet
5. 14 feet
6. 16 feet

IV. Components of a bill of material (Transparency 1)

A. Date

B. Name and address of the buyer

C. Name of purchaser

D. Project

E. Number of pieces

F. Kind of material

G. Dimensions

H. Unit cost per kind of material

I. Total cost

INFORMATION SHEET

J. By whom received

K. Terms

(NOTE: Most firms have paper pads or order books used for completing a bill of material.)

V. Symbols used in lumber selection

A. S1S--Surfaced on one side

B. S2S--Surfaced on two sides

C. S1E--Surfaced on one edge

D. S2E--Surfaced on two edges

E. S4S--Surfaced on all four sides

VI. Rule for calculating board feet

$$\frac{\text{No. of pieces x thickness in inches x width in inches x length in feet}}{12}$$

= board feet

VII. Calculation of board feet--Sample problem

1. One board 1" thick x 4" wide x 12' long

2. $\frac{1 \times 1'' \times 4'' \times 12'}{12} = 4$ board feet

VIII. Calculation of cost of various material

A. Lumber--Board feet

1. Figure number of board feet

2. Multiply number of board feet by cost per board foot

3. Sample problem

a. 1-2" x 8" x 12' at $.30/bd ft or $300/M (1000 bd ft)

b. $\frac{1 \times 2'' \times 8'' \times 12'}{12} = 16$ board feet

c. 16 board feet x $.30 = $4.80

INFORMATION SHEET

B. Steel--Sample problem

(NOTE: Sixteen gauge sheet steel weighs 2.5 lbs/sq ft.)

1. 3' x 8' 16 ga sheet = 60 lbs
2. Steel is $.30/lbs
3. 60 lbs x $.30 = $18.00

C. Sheet iron roofing

1. Figure number of square feet to be covered
2. Calculate number of square feet per sheet
3. Determine number of sheets needed
4. Sample problem
   a. Roof for shed 8' wide 10' long
   b. Sheet roofing is 2' wide and 10' long
   c. Each sheet contains 20 sq ft (2' x 10' = 20 sq ft)
   d. Roof contains 8' x 10' = 80 sq ft
   e. 80 sq ft ÷ 20 sq ft = 4 sheets of sheet iron roofing

Components of a Bill of Material

Sold To _____ Date _____

Job _____

Anytown Lumber Company

Everything for the Builder

1117 West Eighth Avenue Anytown, Oklahoma 327-5599

TERMS - CASH☐ CHARGE☐ PAID ON ACCT.☐

NO. PIECE	SIZE	LGTH	DESCRIPTION	FEET	TOTAL FEET	PRICE	AMOUNT

Received By

BILL OF MATERIAL
UNIT V

ASSIGNMENT SHEET #1--CALCULATE BOARD FEET

Calculate the total board feet in each of the problems listed below.

Formula:

$$\frac{\text{Number of pieces x thickness in inches x width in inches x length in feet}}{12}$$

1. 1 piece 1" x 10" x 10' =
2. 1 piece 1" x 4" x 14' =
3. 1 piece 2" x 6" x 8' =
4. 1 piece 2" x 8" x 10' =
5. 2 pieces 2" x 4" x 8' =
6. 5 pieces 1" x 8" x 8' =
7. 10 pieces 4" x 6" x 10' =
8. 1 piece 2" x 4" x 18' =
9. 7 pieces 10" x 12" x 20' =
10. 3 pieces 1" x 2" x 6' =

BILL OF MATERIAL
UNIT V

ASSIGNMENT SHEET #2--CALCULATE COST OF MATERIALS

Calculate the cost of the various materials listed below.

1. Lumber--Number of board feet x cost per board foot = cost of lumber

   a. 4 pieces 2" x 10" x 12' at a cost of $275/M

   b. 22 pieces 2" x 4" x 16' at a cost of $.32/bd ft

   c. 12 pieces 1" x 12" x 12' at a cost of $.27/bd ft

2. Steel--Pounds x price per pound = cost of material

   Use the tables on the following pages to determine weight of metals for the problems below.

   a. Find the cost of 4 pieces of hot rolled sheet steel 18 ga 3' x 8' at $.27 per pound.

   b. Determine the cost of 100 pieces of 1" x 1" x 1/4" angle 20' long at a cost of $.25 per pound.

   c. Find the cost of 10 pieces of 1/2" round stock 10' long at a cost of $.32 per pound.

   d. Calculate the cost of 5 pieces of 5/8" concrete reinforcing bars 20 ft long at a cost $.07 per foot.

   e. Calculate the cost of one piece of 3" channel iron 10 ft long that weighs 5# per foot at a cost of $.30 per pound.

ASSIGNMENT SHEET #2

CONCRETE REINFORCING BARS

BAR SIZES Old (Inches)	New (Numbers)	Weight Pounds Per Ft.	Diameter Inches
¼	2	.167	.250
⅜	3	.376	.375
½	4	.668	.500
⅝	5	1.043	.625
¾	6	1.502	.750
⅞	7	2.044	.875
1	8	2.670	1.000
1	9	3.400	1.128
1⅛	10	4.303	1.270
1¼	11	5.313	1.410

ROUNDS

Size in Inches	Weight Per Ft.	Size in Inches	Weight Per Ft.
¼	0.167	2¼	13.52
5/16	0.261	2⅜	15.06
⅜	0.376	2½	16.69
7/16	0.511	2⅝	18.40
½	0.668	2¾	20.20
9/16	0.845	3	24.03
⅝	1.043	3¼	28.21
¾	1.502	3½	32.71
⅞	2.044	3¾	37.55
1	2.670	4	42.73
1⅛	3.379	4¼	48.23
1¼	4.173	4½	54.08
1⅜	5.05	4¾	60.25
1½	6.01	5	66.76
1⅝	7.051	5¼	73.60
1¾	8.18	5½	80.78
1⅞	9.39	5¾	88.29
2	10.68	6	96.13
2¼	12.06		

CHANNELS—STRUCTURAL

Depth of Channel Inches	Weight Per Ft., Lbs.	Thickness of Web	Width Flange Inches
3	4.1	0.170	1.410
	5.0	0.258	1.498
	6.0	0.356	1.596
4	5.4	0.180	1.580
	7.25	0.320	1.720
5	6.7	0.190	1.750
	9.0	0.325	1.885
6	8.2	0.200	1.920
	10.5	0.314	2.034
	13.0	0.437	2.157
7	9.8	0.210	2.090
	12.25	0.314	2.194
	14.75	0.419	2.299
8	11.5	0.220	2.260
	13.75	0.303	2.343
	18.75	0.487	2.527
9	13.4	0.230	2.430
	15.0	0.285	2.485
	20.0	0.448	2.648
10	15.3	0.240	2.600
	20.0	0.379	2.739
	25.0	0.526	2.886
	30.0	0.673	3.033
12	20.7	0.280	2.940
	25.0	0.387	3.047
	30.0	0.510	3.170
13	31.8	0.375	4.000
	50.0	0.787	4.412
15	33.9	0.400	3.400
	40.0	0.520	3.520
	50.0	0.716	3.716
18	45.8	0.500	4.000

ASSIGNMENT SHEET #2

ANGLES—BAR SIZES

Size in Inches	Weight Per Ft. Lbs.
1 x1 x1/8	.80
3/16	1.16
1/4	1.49
1 1/8 x1 1/8 x1/8	.90
1 1/4 x1 1/4 x1/8	1.01
3/16	1.48
1/4	1.92
1 3/8 x 7/8 x1/8	.91
3/16	1.32
1 1/2 x1 1/4 x3/16	1.64
1 1/2 x1 1/2 x1/8	1.23
3/16	1.80
1/4	2.34
1 3/4 x1 1/4 x1/8	1.23
1 3/4 x1 3/4 x1/8	1.44
3/16	2.12
1/4	2.77
2 x1 1/4 x3/16	1.96
1/4	2.55
2 x1 1/2 x1/8	1.44
3/16	2.12
1/4	2.77
2 x2 x1/8	1.65
3/16	2.44
1/4	3.19
5/16	3.92
3/8	4.70
2 1/4 x1 1/2 x3/16	2.28
2 1/2 x1 1/2 x3/16	2.44
1/4	3.19
5/16	3.92
2 1/2 x2 x3/16	2.75
1/4	3.62
5/16	4.50
3/8	5.30
2 1/2 x2 1/2 x3/16	3.07
1/4	4.10
5/16	5.00
3/8	5.90
1/2	7.70

ANGLES—STRUCTURAL

Size in Inches	Weight Per Ft., Lbs.
3 x2 x3/16	3.07
1/4	4.10
5/16	5.00
3/8	5.90
1/2	7.70
3 x2 1/2 x1/4	4.50
5/16	5.60
3/8	6.60
1/2	8.50
3 1/2 x3 x1/4	5.40
5/16	6.60
3/8	7.90
1/2	10.20
3 1/2 x3 1/2 x1/4	5.80
5/16	7.20
3/8	8.50
7/16	9.80
1/2	11.10
4 x3 x1/4	5.80
5/16	7.20
3/8	8.50
7/16	9.80
1/2	11.10
5/8	13.60
4 x3 1/2 x1/4	6.2
5/16	7.7
3/8	9.1
7/16	10.6
1/2	11.9
4 x4 x1/4	6.6
5/16	8.2
3/8	9.8
7/16	11.3
1/2	12.8
5/8	15.7
3/4	18.5
5 x3 x1/4	6.6
5/16	8.2
3/8	9.8
7/16	11.3
1/2	12.8
5 x3 1/2 x1/4	8.7
3/8	10.4
7/16	12.0
1/2	13.6
5/8	16.8
3/4	19.8
5 x3 x3/16	3.71
1/4	4.90
5/16	6.10
3/8	7.20
7/16	8.30
1/2	9.40
3 1/2 x2 1/2 x1/4	4.90
5/16	6.10
3/8	7.20
1/2	9.40
5 x5 x3/8	12.3
1/2	16.2
5/8	20.0
3/4	23.6
6 x3 1/2 x3/16	9.8
3/8	11.7
1/2	15.3
6 x4 x5/16	10.3
3/8	12.3
7/16	14.3
1/2	16.2
5/8	20.0
3/4	23.6
7/8	27.2
6 x6 x3/8	14.9
7/16	17.2
1/2	19.6
5/8	24.2
3/4	28.7
7/8	33.1
1	37.4
7 x4 x3/8	13.6
1/2	17.9
5/8	22.1
8 x4 x1/2	19.6
8 x6 x1/2	23.0
5/8	28.5
3/4	33.8
1	44.2
8 x8 x1/2	26.4
5/8	32.7
3/4	38.9
7/8	45.0
1	51.0

ASSIGNMENT SHEET #2

HOT ROLLED SHEET STEEL

Commercial Quality Prime Open Hearth Low Carbon

(Manufacturers Standard Gage)

Gage and Size in Inches	Est. Wt. per Sheet
No. 7 (3/16")	
Wt. per Sq. Ft. 7.50	
36 x 96	180.0
36 x 120	225.0
36 x 144	270.0
36 x 240	450.0
42 x 96	210.0
42 x 120	262.5
42 x 144	315.0
42 x 240	525.0
48 x 96	240.0
48 x 120	300.0
48 x 144	360.0
48 x 240	600.0
60 x 96	300.0
60 x 120	375.0
60 x 144	450.0
60 x 240	750.0
72 x 96	336.0
72 x 120	420.0
72 x 144	504.0
72 x 240	840.0
Over 72" See Plates	
No. 8 (.1644")	
Wt. per Sq. Ft. 6.875	
36 x 96	165.0
36 x 120	206.3
36 x 144	247.5
36 x 192	330.0
42 x 96	192.5
42 x 120	240.6
42 x 144	288.8
42 x 192	385.0
48 x 96	220.0
48 x 120	275.0
48 x 144	333.0
48 x 192	440.0
54 x 96	247.5
54 x 120	309.4
54 x 144	371.3
54 x 192	495.0

Gage and Size in Inches	Est. Wt. per Sheet
No. 8 (.1644") (Cont'd.)	
60 x 96	275.0
60 x 120	343.8
60 x 144	412.5
60 x 192	550.0
72 x 96	330.0
72 x 120	412.5
72 x 144	495.0
72 x 192	660.0
No. 10 (.1345")	
Wt. per Sq. Ft. 5.625	
36 x 96	135.0
36 x 108	151.9
36 x 120	168.8
36 x 144	202.5
40 x 96	150.0
40 x 120	187.5
42 x 96	157.5
42 x 120	196.9
42 x 144	236.3
48 x 96	180.0
48 x 120	225.0
48 x 144	270.0
54 x 96	202.5
54 x 120	253.1
60 x 96	225.0
60 x 120	281.3
60 x 144	337.5
72 x 96	270.0
72 x 120	337.5
72 x 144	405.0
72 x 192	540.0
No. 11 (.1196")	
Wt. per Sq. Ft. 5.00	
36 x 96	120.0
36 x 120	150.0
36 x 144	180.0
42 x 96	140.0
42 x 120	175.0
42 x 144	210.0
48 x 96	160.0
48 x 120	200.0
48 x 144	240.0
54 x 144	270.0

Gage and Size in Inches	Est. Wt. per Sheet
No. 11 (.1196") (Cont'd.)	
Wt. per Sq. Ft. 5.00	
60 x 96	200.0
60 x 120	250.0
60 x 144	300.0
72 x 120	300.0
72 x 144	360.0
72 x 192	480.0
No. 12 (.1046")	
Wt. per Sq. Ft. 4.375	
36 x 96	105.0
36 x 120	131.3
36 x 144	157.5
40 x 96	116.7
40 x 120	145.8
42 x 96	122.5
42 x 120	153.1
42 x 144	183.8
48 x 96	140.0
48 x 120	175.0
48 x 144	210.0
48 x 156	227.5
54 x 96	157.5
54 x 120	196.9
54 x 192	315.0
60 x 96	175.0
60 x 120	218.8
60 x 144	262.5
60 x 168	306.3
72 x 96	210.0
72 x 120	262.5
72 x 144	315.0
72 x 192	420.0
No. 14 (.0747")	
Wt. per Sq. Ft. 3.125	
36 x 96	75.0
36 x 120	93.8
36 x 144	112.5
40 x 96	83.3
40 x 120	104.2
42 x 96	87.5
42 x 120	109.4
42 x 144	131.3

Gage and Size in Inches	Est. Wt. per Sheet
No. 14 (.0747") (Cont'd.)	
48 x 96	100.0
48 x 120	125.0
48 x 144	150.0
48 x 156	162.5
54 x 96	112.5
54 x 120	140.6
54 x 156	182.8
60 x 96	125.0
60 x 120	156.3
60 x 144	187.5
60 x 192	250.0
72 x 96	150.0
72 x 120	187.5
72 x 144	225.0
No. 16 (.0598")	
Wt. per Sq. Ft. 2.50	
36 x 96	60.0
36 x 120	75.0
36 x 144	90.0
40 x 96	66.7
40 x 120	83.3
42 x 96	70.0
42 x 120	87.5
42 x 144	105.0
48 x 96	80.0
48 x 120	100.0
48 x 144	120.0
48 x 156	130.0
54 x 96	90.0
54 x 120	112.5
54 x 156	146.3
60 x 96	100.0
60 x 120	125.0
60 x 144	150.0
60 x 168	175.0
No. 18 (.0478")	
Wt. per Sq. Ft. 2.00	
36 x 96	48.0
36 x 120	60.0
42 x 96	56.0
42 x 120	70.0
48 x 96	64.0
48 x 120	80.0
48 x 144	96.0

BILL OF MATERIAL
UNIT V

ASSIGNMENT SHEET #3--COMPLETE A BILL OF MATERIAL

Complete a bill of material for a project you are to make in the shop or a project designated by the instructor.

BILL OF MATERIAL
UNIT V

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. 8.3 board feet
2. 4.6 board feet
3. 8 board feet
4. 13.3 board feet
5. 10.6 board feet
6. 26.5 board feet
7. 200 board feet
8. 12 board feet
9. 1,400 board feet
10. 3 board feet

Assignment Sheet #2

1. a. $22.00
   b. $75.09
   c. $38.08
2. a. $64.80
   b. $745.00
   c. $21.38
   d. $7.00
   e. $15.00

Assignment Sheet #3--Evaluated to satisfaction of instructor

BILL OF MATERIAL
UNIT V

TEST

1. Match terms on the right to the correct definition.

_____a. Piece of lumber one inch thick, 12 inches long, and 12 inches wide	1. Square foot
_____b. Foot length of a material regardless of thickness and width	2. Cubic foot
_____c. Equal to a 12-inch by 12-inch surface regardless of thickness	3. Running foot
_____d. Unit of measurement equal to 100 square feet of material	4. Square
_____e. Lumber that has been sawed to dimension but not planed; usually thicker and wider	5. Board foot
_____f. Lumber that has been surfaced by running through a planer	6. Surfaced lumber
_____g. Measurement 12 inches long by 12 inches wide and 12 inches thick	7. Bill of material
_____h. Itemized list of the number and kind of pieces needed and the dimensions of each for the construction of a project	8. Rough stock

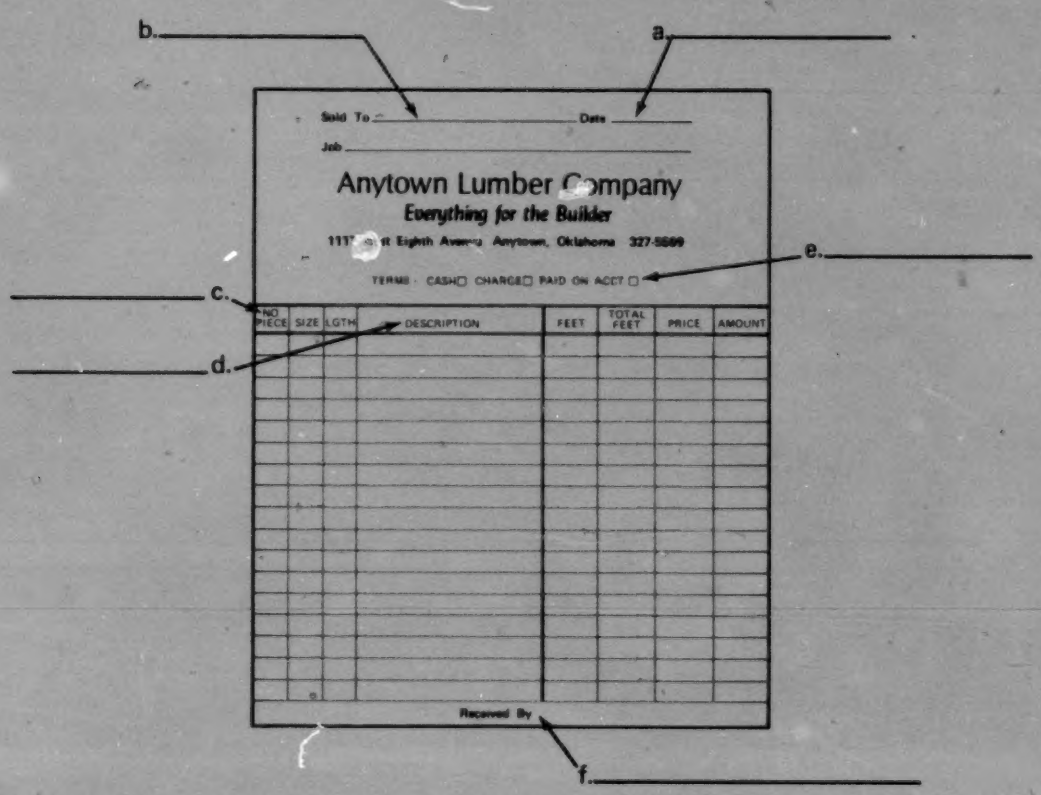
2. Match the units of measure by which materials are sold on the right to the correct material.

_____a. Lumber	1. Bundle
_____b. Steel	2. Weight
_____c. Shingles	3. Board foot
_____d. Molding	4. Square
_____e. Lathe	5. Running foot

3. Select from the list below basic measurements in width and length by which most lumber is sold. Place an "X" in the correct blanks.

Width	Length
_____a. 1/2 inch	_____i. 6 feet
_____b. 4 inches	_____j. 4 feet
_____c. 3/4 inch	_____k. 2 feet
_____d. 6 inches	_____l. 8 feet
_____e. 9 inches	_____m. 14 feet
_____f. 8 inches	_____n. 12 feet
_____g. 10 inches	_____o. 16 feet
_____h. 12 inches	_____p. 18 feet

4. Identify the components of the bill of material illustrated below.



5. Match symbols used in lumber selection on the right to the correct description.

_____	a. Surfaced on one side	1.	S4S
_____	b. Surfaced on two sides	2.	S1E
_____	c. Surfaced on one edge	3.	S1S
_____	d. Surfaced on two edges	4.	S2E
_____	e. Surfaced on all four sides	5.	S2S

6. State the rule for calculating board feet.

7. Calculate problems determining board feet.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

8. Calculate the following problems.

a. Find the number of pounds of steel in a 10 ga sheet 48" x 96" if it weighs 5.625 pounds per square foot.

b. What is the cost of 100 board feet of lumber if it costs $300 per thousand board feet?

9. Complete a bill of material.

(NOTE: If this has not been accomplished prior to the test, ask the instructor when the above activity should be completed.)

BILL OF MATERIAL
UNIT V

ANSWERS TO TEST

1. a. 5
   b. 3
   c. 1
   d. 4
   e. 8
   f. 6
   g. 2
   h. 7
2. a. 3
   b. 2
   c. 4
   d. 5
   e. 1
3. b, d, f, g, h, i, l, m, n, o
4. a. Date
   b. Name of purchaser
   c. Number of pieces
   d. Kind of material
   e. Terms
   f. By whom received
5. a. 3
   b. 5
   c. 2
   d. 4
   e. 1

6. $\frac{\text{No. of pieces x thickness in inches x width in inches x length in feet}}{12} =$

board feet

7. Evaluated to the satisfaction of the instructor.

8. a. 180 lbs

b. $30.00

9. Evaluated to the satisfaction of the instructor.

PLUMBING
UNIT VI

TERMINAL OBJECTIVE

After completion of this unit, the student should be able to identify various kinds of pipe or tubing and fittings. He should also be able to demonstrate proper procedures for fitting various kinds of pipe or tubing. This knowledge will be evidenced through demonstration and by scoring eighty-five percent on the unit test.

SPECIFIC OBJECTIVES

After completion of this unit, the student should be able to:

1. Match terms associated with plumbing to the correct definitions.
2. Match the various kinds of pipe to the use of each.
3. Identify common pipe fittings.
4. Select from a list reasons for using threading compound.
5. Identify tools used in plumbing.
6. List reasons for using cutting oil.
7. Select from a list common sizes of pipe and copper tubing used in plumbing.
8. Describe how pipe size is determined in relationship to copper tubing.
9. Discuss the differences between pipe, bolt, and copper fitting threads.
10. Demonstrate the ability to:
    a. Cut pipe.
    b. Ream pipe.
    c. Thread pipe.
    d. Join or fit plastic pipe.
    e. Sweat a copper joint.
    f. Cut and flare copper tubing.

PLUMBING
UNIT VI

SUGGESTED ACTIVITIES

I. Instructor:

A. Provide student with objective sheet.

B. Provide student with information and job sheets.

C. Make transparencies.

D. Discuss terminal and specific objectives.

E. Discuss information sheet.

F. Demonstrate and discuss procedures outlined on the job sheets.

G. Give test.

II. Student:

A. Read objectives.

B. Study information sheet.

C. Demonstrate the ability to complete the procedures outlined on the job sheets.

D. Take test.

INSTRUCTIONAL MATERIALS

I. Included in this unit:

A. Objectives

B. Information sheet

C. Transparency masters

1. TM 1--Pipe Fittings
2. TM 2--Types of Valves
3. TM 3--Plumbing Tools
4. TM 4--Plumbing Tools (Continued)
5. TM 5--Pipe vs Bolt Threads

D. Job sheets

1. Job Sheet #1--Cut Pipe
2. Job Sheet #2--Ream Pipe
3. Job Sheet #3--Thread Pipe
4. Job Sheet #4--Join or Fit Plastic Pipe
5. Job Sheet #5--Sweat a Copper Joint
6. Job Sheet #6--Cut and Flare Copper Tubing

E. Test

F. Answers to test

II. References:

A. Phipps, Lloyd, H.F. McColly, L.L. Scranton, and G.C. Cook. *Farm Mechanics Text and Handbook.* Danville, Illinois: Interstate Printers and Publishers.

B. Jones, M. M. *Shopwork on the Farm.* New York: McGraw-Hill Book Company.

C. *General Shop Guide for Vo-Ag Students.* Montgomery: State of Alabama, State Department of Education, Vocational Division, Agricultural Education Service.

D. *Handy Man's Plumbing and Heating Guide.* New York: Arco Publishing Company, Inc., 1973.

PLUMBING
UNIT VI

INFORMATION SHEET

I. Terms and definitions

A. Plumbing--Piping and pipe attachments used to carry water into buildings and to drain away sewage and waste

B. Soil pipe--Any pipe that receives the discharge of waste water from house fixtures

C. Fitting--Piece used to join pipe, to provide opening in pipe, and to change the direction of pipe

D. Trap--Water-sealed bend or chamber in a waste pipe

E. House drain--Pipe which carries all the sewage from the house

F. Stack--Soil, waste, or ventilating pipe

G. Fixture--Appliance connected to the plumbing

H. Septic tank--Tank which receives all the sewage piped into it and allows the process of sewage treatment to take place

I. Lateral pipe--Pipe which drains the liquid from the septic tank to the soil

II. Kinds of pipe and their uses

A. Black--Used for natural and L.P. gas, oil, and air lines

B. Galvanized--Used for water lines

C. Copper tubing--Used for water, refrigeration, and waste systems

D. Cast iron--Used in sewage systems

E. Brass or lead--Used for traps and drains

F. Plastic--Used in water systems

G. PVC--Plastic pipe used in a water or sewage system

H. Soil--Used in sewage system; generally a cast iron pipe

INFORMATION SHEET

III. Pipe fittings (Transparencies 1 and 2)

A. 45° elbow

B. 90° street elbow

C. Bell reducer

D. Coupling

E. Nipple

F. Tee

G. Union

H. Bushing

I. Cap

J. Plug

K. Floor flange

L. Straight cross

M. "Y"

N. Globe valve

O. Gate valve

P. Gas stop

IV. Reasons for using threading compound

A. Insures tight joints

B. Prevents threads from rusting

V. Tools used in plumbing (Transparencies 3 and 4)

A. Die

B. Bench yolk or chain vise

INFORMATION SHEET

C. Burr reamer

D. Pipe wrench

E. Pipe cutter

F. Hacksaw

G. Tapered triangular file

H. Tubing cutter

I. Flaring tools

VI. Reasons for using cutting oil

A. Allows tools to cut smoother

B. Permits tools to cut easier

C. Lengthens lifetime of tools

D. Removes burrs and cuttings from dies

VII. Common sizes of pipe and copper tubing used in plumbing

A. Pipe

1. 1/4"
2. 1/2"
3. 3/4"
4. 1"
5. 1 1/4"

B. Copper tubing

1. 3/8"
2. 7/16"
3. 1/2"
4. 3/16"
5. 5/8"

INFORMATION SHEET

VIII. Size of pipe vs copper tubing

A. Pipe size determined by inside diameter

B. Tubing size determined by outside diameter

C. Pipe wall generally thicker

IX. Differences between pipe, bolt, and copper fitting threads (Transparency 5)

A. Pipe

1. Tapers 1/32" per inch in length

(NOTE: This insures a tight fit.)

2. Has standard threads

B. Bolt

1. Straight

2. National coarse

3. National fine

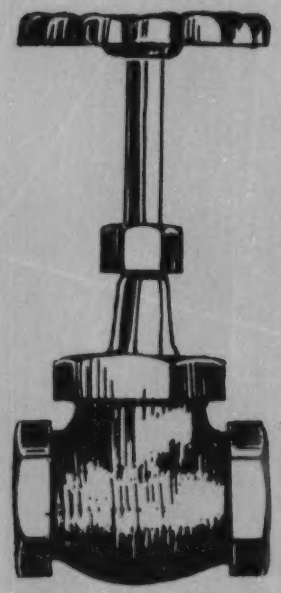
C. Copper fitting--National fine threads

(NOTE: National fine threads are used to provide more strength to insure a tight joint.)

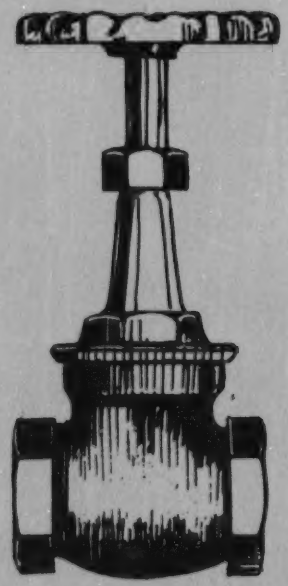
Pipe Fittings

00550

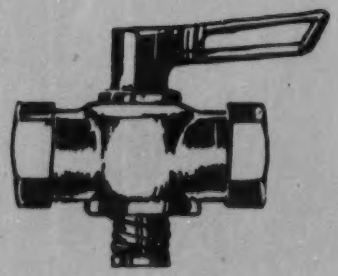
Types of Valves



Globe Valve



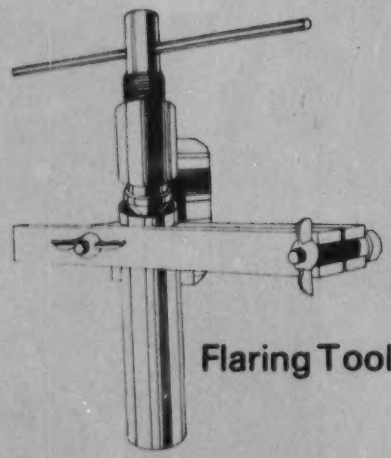
Gate Valve



Gas Stop

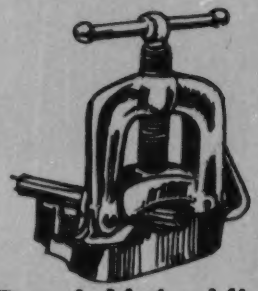
00551

Plumbing Tools



Flaring Tool

Small Ratchet Threader



Bench Yoke Vise

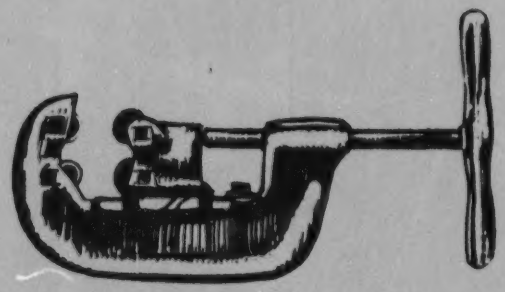
Burr Reamer

Pipe Wrench

Chain Vise

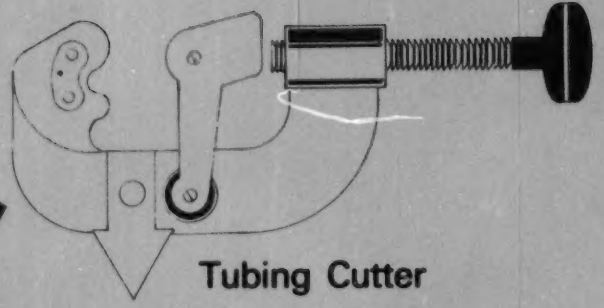
00552

Plumbing Tools
(Continued)

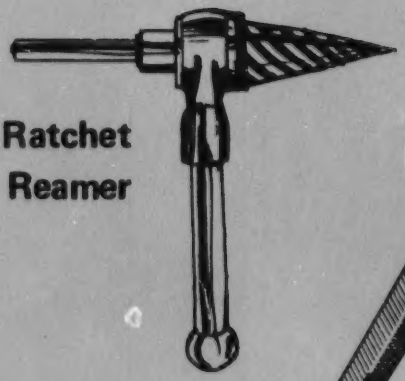


Pipe Cutter

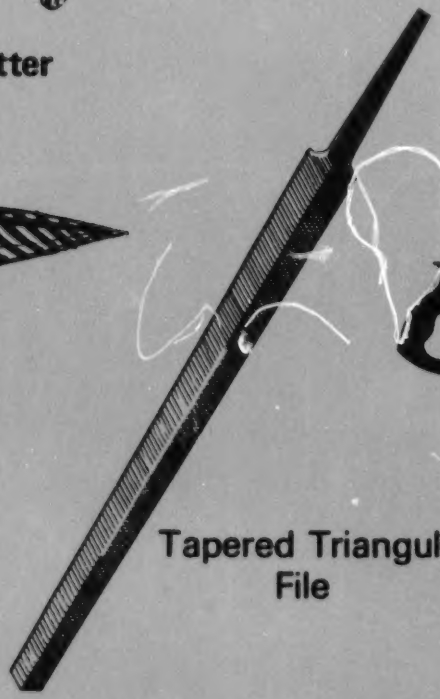
Die



Tubing Cutter



Spiral Ratchet
Pipe Reamer

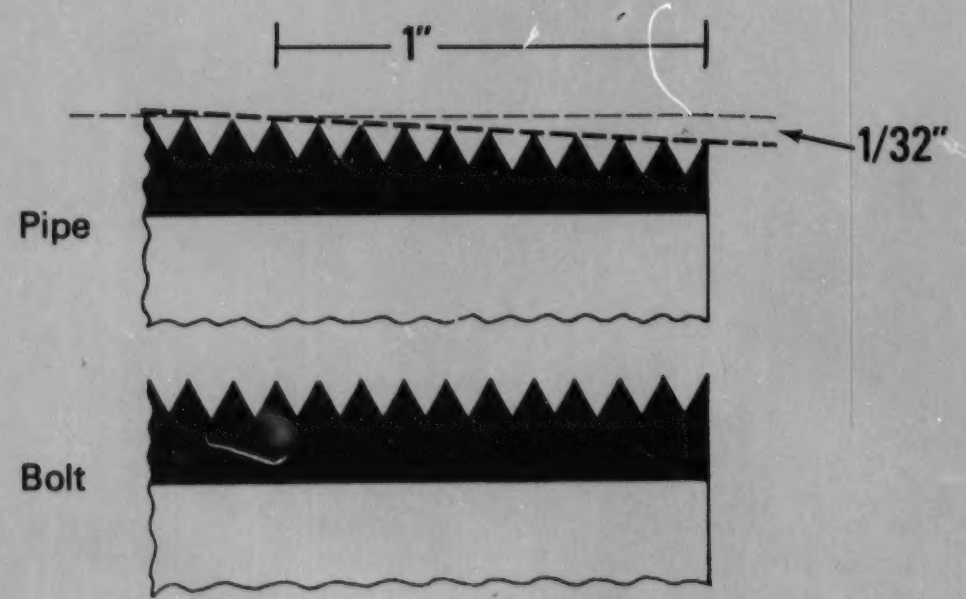


Tapered Triangular
File

Hack Saw

00553

Pipe vs Bolt Threads



00554

PLUMBING
UNIT VI

JOB SHEET #1--CUT PIPE

I. Tools and materials

A. Vise

B. Tapered triangular file

C. Ruler or steel tape

D. Pipe cutter

E. 3/4 inch pipe, 2 feet

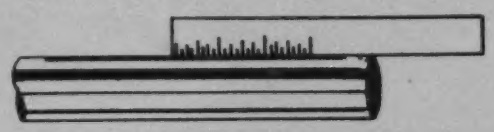
F. 1/2 inch pipe, 1 foot

II. Procedure

(NOTE: Using the procedure below, cut two pieces of 3/4 inch pipe eight inches long. Cut one piece of 1/2 inch pipe eight inches long.)

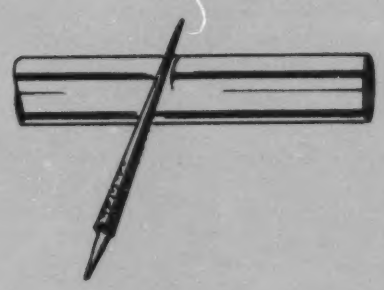
A. Measure length of pipe desired (Figure 1)

FIGURE 1



B. Mark desired length with tapered triangular file (Figure 2)

FIGURE 2



C. Fasten pipe in vise so mark is at least four inches from vise

D. Place pipe cutter on mark

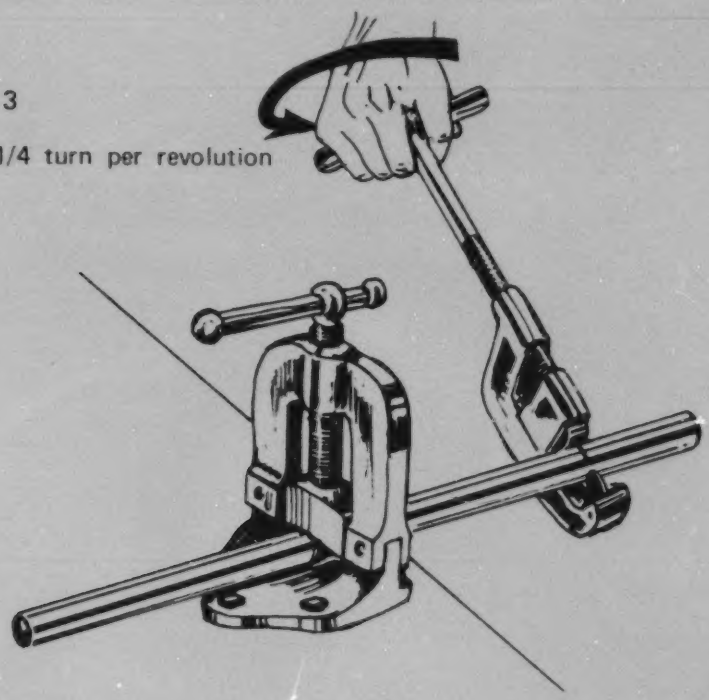
JOB SHEET #1

E. Tighten pipe cutter by screwing in handle until cutting wheel is snug against pipe

F. Hold handle perpendicular to the pipe and tighten handle until cutting wheel penetrates metal

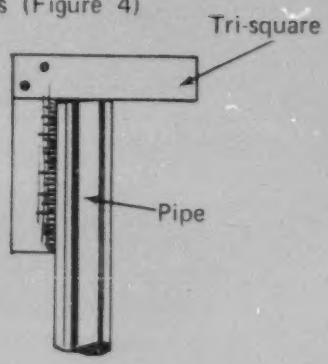
G. Turn pipe cutter 1/4 turn per revolution until pipe is cut off (Figure 3)

FIGURE 3



H. Check cut for squareness (Figure 4)

FIGURE 4



I. Turn in to instructor for grade

PLUMBING
UNIT VI

JOB SHEET #2--REAM PIPE

I. Tools and materials

A. Vise

B. Burr reamer

C. Carpenter brace

D. 3/4 inch pipe, 8 inches long, 2 pieces

E. 1/2 inch pipe 8 inches long, 1 piece

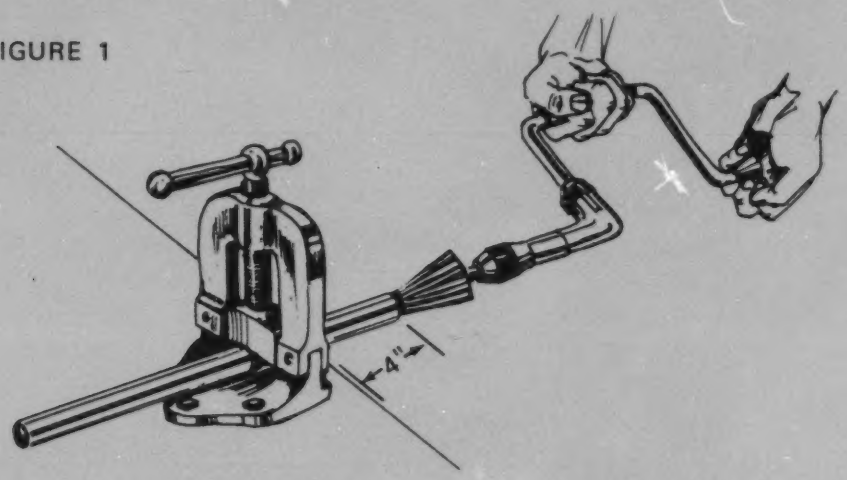
(NOTE: Use the pipe cut in Job Sheet #1.)

II. Procedure

(NOTE: Using the procedure below, ream two pieces of 3/4 inch pipe eight inches long. Ream one piece of 1/2 inch pipe eight inches long.)

A. Fasten pipe in vise allowing four inches to extend from vise (Figure 1)

FIGURE 1



B. Place reamer in line with pipe (Figure 1)

C. Turn reamer clockwise until inside burr is off (Figure 1)

D. Remove reamer and check with finger to see if burr is cut away

(NOTE: Do not cut more than necessary because the first threads on pipe will be weakened.)

E. Turn in to instructor for grade

PLUMBING
UNIT VI

JOB SHEET #3--THREAD PIPE

I. Tools and materials

A. Vise

B. Flat file

C. 3/4" and 1/2" dies

D. Die stock

E. Cutting oil

F. Wire brush

G. 3/4 inch pipe, 8 inches long, 2 pieces

H. 1/2 inch pipe, 8 inches long, 1 piece

(NOTE: Use the pipe cut in Job Sheet #1.)

II. Procedure

(NOTE: Using the procedure below, thread the pieces of pipe that were used in Job Sheets #1 and #2. Thread pipes on both ends.)

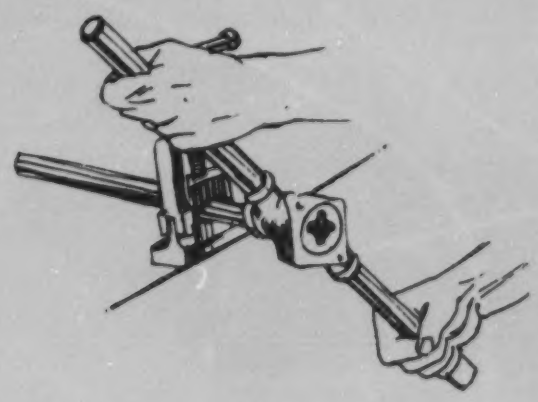
A. Place pipe in vise, allowing six inches to extend from vise

B. File off any outside burr that may be on pipe end

C. Place proper size die in stock

D. Place pressure against die holder with palm of hand; turn clockwise until die starts cutting threads (Figure 1)

FIGURE 1



JOB SHEET #3

E. Use cutting oil on the threading area at all times

F. Continue threading until one thread is past the die

G. Back off die and inspect threads

H. Use wire brush and clean threads

I. Turn in to instructor for grade

PLUMBING
UNIT VI

JOB SHEET #4--JOIN OR FIT PLASTIC PIPE

I. Tools and materials

A. Hacksaw

B. 1/2" plastic pipe, 2 feet

C. Plastic pipe cement

D. 1/2" plastic coupling

E. Clean rags

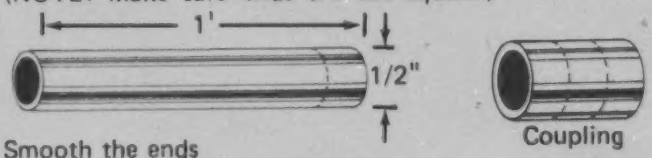
F. Solvent for cleaning plastic pipe

II. Procedure

A. Cut two pieces of 1/2" plastic pipe one foot in length (Figure 1)

(NOTE: Make sure ends are cut square.)

FIGURE 1



B. Smooth the ends

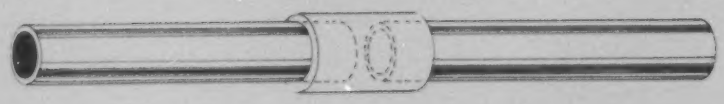
C. Clean ends of pipe and coupling with clean rag and solvent

D. Spread cement evenly over inside of coupling

E. Insert pipe and give 1/4 turn

(NOTE: Make sure the pipe is pushed into the coupling as far as it will go. See Figure 2.)

FIGURE 2



F. Repeat steps C, D, and E for other end of coupling

G. Let set until dry

PLUMBING
UNIT VI

JOB SHEET #5--SWEAT A COPPER JOINT

I. Tools and materials

A. 1/2" copper tubing, 2 pieces

B. 1/2" copper tubing coupling sweat joint

C. Solder

D. Flux

E. Oxyacetylene torch

F. Tubing cutter

G. Reaming tool

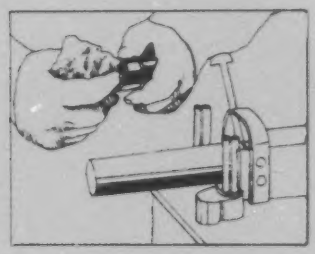
H. Clean rags

II. Procedure

A. Cut tubing to desired length

B. Remove burrs, inside and out (Figure 1)

FIGURE 1



C. Clean the surface to be soldered by coating with flux and wiping clean

JOB SHEET #5

D. Apply a thin, even coat of flux (Figure 2)

FIGURE 2

E. Join tubing and fitting; give a 1/4 twist (Figure 3)
(NOTE: This will spread the flux.)

FIGURE 3

F. Apply heat to the heaviest part of the fitting first then move to the opening where solder enters (Figure 4)

FIGURE 4

JOB SHEET #5

G. Apply solder to joint (Figure 5)

(NOTE: Heat melts the solder and capillary action draws it into the clearance spacer of the joint.)

FIGURE 5

H. Wipe joint clean while solder is molten (Figure 6)

FIGURE 6

PLUMBING
UNIT VI

JOB SHEET #6--CUT AND FLARE COPPER TUBING

I. Tools and materials

A. 3/8" flare nuts, 2

B. 3" copper union, 1

C. 3/8" copper tubing, 6" long, 2 pieces

D. Tubing cutter

E. Flaring tool

F. Reamer

G. File

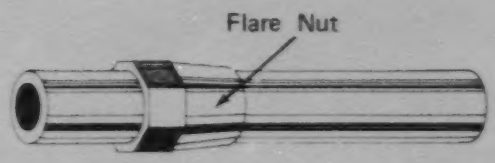
II. Procedure

A. Cut tubing to desired length

B. Remove burrs, inside and out

C. Place flare nut on tubing (Figure 1)

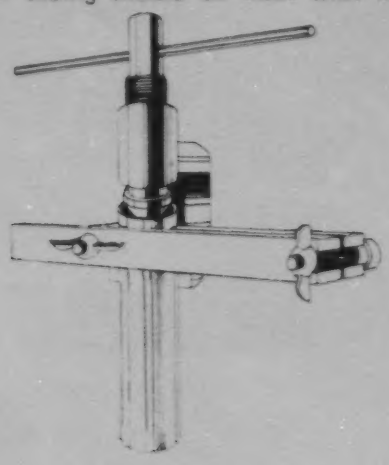
FIGURE 1



D. Place tubing in flaring tool and secure (Figure 2)

(NOTE: End of tubing should be flush with flaring tool.)

FIGURE 2



JOB SHEET #6

E. Flare end of tubing

(NOTE: Make sure end flares evenly and will fit the union snugly.)

PLUMBING
UNIT VI

TEST

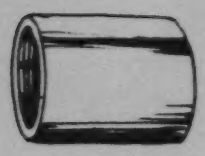
1. Match terms associated with plumbing to the correct definition.

_____a. Pipe which drains the liquid from the septic tank to the soil	1. House drain
_____b. Pipe which carries all the sewage from the house	2. Stack
_____c. Water-sealed bend or chamber in a waste pipe	3. Fixture
_____d. Soil, waste, or ventilating pipe	4. Septic tank
_____e. Piping and pipe attachments used to carry water into buildings and to drain away sewage and waste	5. Lateral pipe
_____f. Piece used to join pipe, to provide opening in pipe, and to change the direction of pipe	6. Plumbing
_____g. Appliance connected to the plumbing	7. Soil pipe
_____h. Any pipe that receives the discharge of waste water from house fixtures	8. Fitting
_____i. Tank which receives all the sewage piped into it and allows the process of sewage treatment to take place	9. Trap

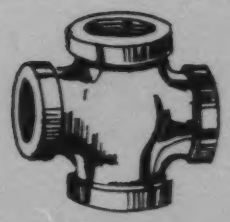
2. Match the various kinds of pipe on the right to the correct use.

_____a. Used for water lines	1. PVC
_____b. Used for natural and L.P. gas, oil, and air lines	2. Black
_____c. Plastic pipe used in a water or sewage system	3. Soil
_____d. Used in sewage system; generally a cast iron pipe	4. Galvanized
_____e. Used for traps and drains	5. Brass or lead
_____f. Used for water, refrigeration, and waste systems	6. Copper tubing

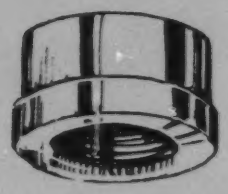
3. Identify the following common pipe fittings by writing the correct name in the blank.



a. _____

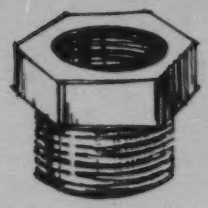


b. _____

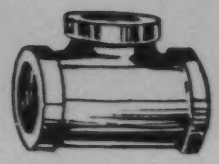


c. _____

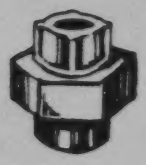
d. _____



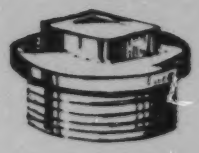
e. _____



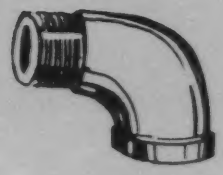
f. _____



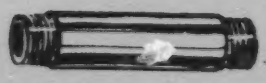
g. _____



h. _____



i. _____



j. _____

4. Select from the list below reasons for using threading compound by placing an "X" in the blank.

_____a. Insures tight joints

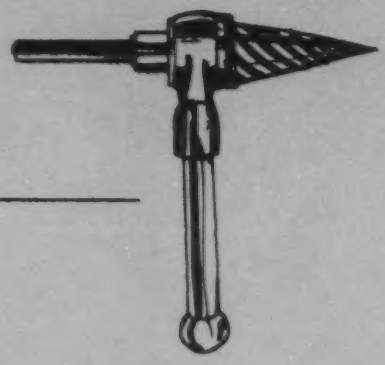
_____b. Fits together easier

_____c. Prevents threads from rusting

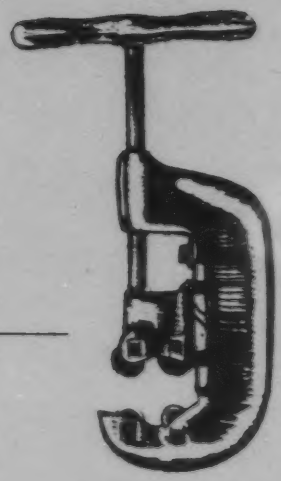
_____d. Can be disassembled easier

5. Identify the following tools used in plumbing by writing the correct name in the blank.

a._____



b._____



c._____

d._____

e._____

6. List four reasons for using cutting oil.

a.

b.

c.

d.

7. Select from the list below common sizes of pipe and copper tubing used in plumbing by placing an "X" in the blank.

Pipe	Copper tubing
_____a. 4"	_____h. 2"
_____b. 1"	_____i. 3/8"
_____c. 1 1/4"	_____j. 1/2"
_____d. 1/2"	_____k. 7/16"
_____e. 3"	_____l. 1"
_____f. 2"	_____m. 1 1/4"
_____g. 3/4"	_____n. 1 1/2"

8. Describe how pipe size is determined in relationship to copper tubing.

9. Discuss the differences between pipe, bolt, and copper fitting threads.

10. Demonstrate the ability to:

a. Cut pipe.

b. Ream pipe.

c. Thread pipe.

d. Join or fit plastic pipe.

e. Sweat a copper joint.

f. Cut and flare copper tubing.

(NOTE: If these have not been accomplished prior to the test, ask the instructor when the above activities should be completed.)

PLUMBING
UNIT VI

ANSWERS TO TEST

1. a. 5 f. 8
   b. 1 g. 3
   c. 9 h. 7
   d. 2 i. 4
   e. 6
2. a. 4 d. 3
   b. 2 e. 5
   c. 1 f. 6
3. a. Coupling f. Tee
   b. Straight cross g. Union
   c. Cap h. Plug
   d. 45° elbow i. Street elbow
   e. Bushing j. Nipple
4. a, c
5. a. Bench yoke vise
   b. Spiral ratchet pipe reamer
   c. Pipe cutter
   d. Ratchet threader
   e. Pipe wrench
6. a. Allows tools to cut smoother
   b. Permits tools to cut easier
   c. Lengthens lifetime of tools
   d. Removes burrs and cuttings from dies

7. b, c, d, g, i, j, k

8. Description should include:

   a. Pipe size determined by inside diameter

   b. Tubing size determined by outside diameter

   c. Pipe wall generally thicker

9. Discussion should include:

   a. Pipe

      1. Tapers 1/32" per inch in length

      2. Has standard threads

   b. Bolt

      1. Straight

      2. National coarse

      3. National fine

   c. Copper fitting--National fine threads

10. Performance skills evaluated to satisfaction of the instructor.

Progress Chart

Agriculture II

Names	Read and Interpret a Drawing	Draw a Three-View Sketch	Draw a Simple Project	Test Unit I	Make a Pad in Horizontal Position	Make a Single V-Groove Butt Weld in Flat Position	Make a Single V-Groove Butt Weld in Horizontal Position	Make a Single V-Groove Butt Weld in Vertical Up Position	Make a Single V-Groove Butt Weld in Overhead Position	Run a Continuous Bead	Test Unit II	Turn On, Light, Adjust, and Turn Off Oxyacetylene Equipment	Construct a Corner Weld without Filler Rod	Lay Beads on Gauge Metal without Filler Rod	Lay Beads on Gauge Metal with Filler Rod	Weld Butt Joints with Filler Rod	Test Unit III	Braze Weld a Square Groove Butt Joint	Test Unit IV	Calculate Board Feet	Calculate Cost of Various Materials	Complete a Bill of Material	Test Unit V	Cut Pipe	Ream Pipe	Thread Pipe	Join and Fit Plastic Pipe	Sweat a Copper Joint	Cut and Flare Copper Tubing	Test Unit VI
1.																														
2.																														
3.																														
4.																														
5.																														
6.																														
7.																														
8.																														
9.																														
10.																														
11.																														
12.																														
13.																														
14.																														
15.																														

ACCESSION NUMBER: VT103474

TITLE: SCIENCE CAREER EDUCATION: A COURSE OF STUDY. EXPERIMENTAL EDITION, 1975.

DESCRIPTOR: *SCIENCE EDUCATION; CAREER EXPLORATION; SENIOR HIGH SCHOOLS; *SCIENCE UNITS; UNIT PLAN; *HEALTH OCCUPATIONS EDUCATION; COURSE CONTENT; CHEMISTRY; BIOLOGY; *LABORATORY TECHNOLOGY; PARAPROFESSIONAL PERSONNEL; MEDICAL LABORATORY ASSISTANT; NURSING

IDENTIFIER: SIMI VALLEY HIGH SCHOOL; CALIFORNIA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 97P.

ABSTRACT: THE SCIENCE CAREER EDUCATION COURSE DEVELOPED FOR INCORPORATION IN THE SCIENCE CURRICULUM OF THE SIMI VALLEY HIGH SCHOOL, CALIFORNIA, CONTAINS TWO COMPONENTS. THE FIRST SEMESTER CONSISTS OF CORE UNITS PROVIDING BASIC MATERIALS IN BIOLOGY, CHEMISTRY, AND PHYSICS WITH LABORATORY SKILLS TRAINING. THE SECOND SEMESTER CONSISTS OF UNITS FOR SPECIALIZED VOCATIONAL EDUCATION, WITH SEGMENTS ON LABORATORY ASSISTANT (BOTH MEDICAL AND NONMEDICAL) AND PRENURSING. IN ITS PRESENT STAGE OF DEVELOPMENT THE COURSE IS NARROWED TO THE THREE CATEGORIES OF SPECIALIZATION FOR WHICH THERE ARE NEEDS BY NO EXISTING EDUCATIONAL PROGRAMS. TWO CATEGORIES PROVIDE TRAINING TO QUALIFY THE STUDENT FOR ENTRY EMPLOYMENT AS LABORATORY ASSISTANT, EITHER IN A MEDICAL LABORATORY OR NONMEDICAL (TESTING) LABORATORY. A THIRD ALTERNATIVE PROVIDES FURTHER SPECIALIZED EDUCATION PREPARATORY TO POSTSECONDARY EDUCATION FOR AN ALLIED HEALTH CAREER. EACH COURSE SEGMENT REFERENCES TEXTBOOKS AND SUPPLEMENTARY MATERIALS. COURSE STRUCTURE IS FLEXIBLE TO ALLOW REVISIONS FOR FUTURE NEEDS OR JOB MARKET CHANGES. (MF)

INSTITUTION NAME: SIMI VALLEY UNIFIED SCHOOL DISTRICT, SIMI, CALIF.

SPONSORING AGENCY NAME: CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 474

OCT 20 1976

SCIENCE CAREER EDUCATION

A COURSE OF STUDY

(EXPERIMENTAL EDITION)

1975

In Partial Compliance of
Vocational Education Project
#56-72603-D-5
Under the
Vocational Education Ammendments of 1968
P. L. 90-576 Part D-Exemplary

Project Director:
Dr. Chester A. Howe
Director of Extended Services
Simi Valley Unified School District

Project Consultant:
John L. Van Zant
Ventura County Director of
Occupational Education

Curriculum Development Specialist:
Wayne C. Hollins
Science Department
Simi Valley High School

Associate Director:
Dr. Dale A. Johnson
Assistant Principal
Simi Valley High School

Program Planning Specialist:
Maribeth Potter
Simi Valley Unified School
District

Ventura County Superintendent of Schools Office Staff As
Additional Resource Personnel

VT 103 474

ACKNOWLEDGMENT

--A sincere expression of thanks is extended to all who cooperated to make this project a reality, particularly to Mr. John Van Zant, Director of Occupational Education, Ventura County Schools; Dr. Chester Howe, Director of Extended Services, Simi Valley Unified School District; and Dr. Dale Johnson, Assistant Principal, Simi Valley High School.

--A special thanks to Mrs. Maribeth "Mickie" Potter for her continued support and input into the development of the course of study.

--Consultants from industry providing outstanding contributions:

Ms. Ruth Beebe, Laboratory Procedure Division of Upjohn Company.

Mrs. Linda Fisher and Mr. Ernie Holkestad, North American Rockwell.

Mr. Bernd S. Givon, V.P., United States Testing Company.

Mr. Donald F. Hancock, CLML Inc., Clinical Laboratories.

Mr. Peter Krupczak, California Hospital Medical Center.

Mr. Rudi Mattoni, Agri-Science Laboratories, Inc.

Mr. Larry Ritchie, Reference Laboratory Div. of Abbott Laboratories.

--References for curriculum materials and behavioral objectives:

Career Education: An Objectives Catalog, Am. Institute for Research.

Interdisciplinary Approaches to Chemistry, Harper & Row, Publishers.

SCORE: Performance Objective Catalog, Westinghouse Learning Corp.

Simi Valley High School Science Department.

TABLE OF CONTENTS

PART	PAGE
Preface	1
Introduction	3
Course Description	8
Course Goals	10
Course Design	11
Unit: Introduction - Overview	12
Segment: Course Format/Purpose	14
Segment: Course Requirements	15
Unit: Career Exploration - Overview	20
Segment: Job Identification & Description	22
Segment: Identification of Educational Requirements	24
Segment: Applications to Advancement	25
Unit: Laboratory Orientation - Overview	42
Segment: Safety in the Laboratory	44
Segment: Labware/Apparatus Identification and Use	45
Segment: Biology/Chemistry: Human Activities	48
Segment: Biology/Chemistry: Measuring	49
Unit: Introductory Chemistry - Overview	58
Segment: Investigating Physical Properties	60
Segment: Chemical Changes	62
Segment: The Language of Chemistry	63
Unit: Molecules of Life - Overview	66
Segment: Considering Life Processes	67
Segment: Properties & Reactions of Biomolecules	68
Segment: Enzymes: Where the Action Is	69
Segment: Metabolism, the Community of Enzyme Reactions	71
Segment: Putting It All Together	72
Segment: The Organization of Cellular Activities	73
Unit: Second Semester - Overview	74
Unit: Lab Assistant (Medical)	
Segment: Laboratory Simulation	78

Unit: Lab Assistant (Non-Medical)
Segment: Laboratory Simulation 79

Unit: Preparation for Postsecondary Education
Segment: Program Design 80

Unit: Lab Assistant
Segment: Periodicity: A Chemical Calendar 81
Segment: Bioinorganic Chemistry 82
Segment: Structural Chemistry of Metals and Their Compounds 83
Segment: Inorganic Molecules 84
Segment: Chemistry of Transition Elements 85
Segment: Organic Chemistry 86
Segment: Alcohols, Esters, and Acids 87

Unit: Pre-Nursing
Segment: Tissues 88
Segment: Skeleton 89
Segment: Respiratory System 90
Segment: Digestive System 91
Segment: Circulatory System 92
Segment: Nervous System 93

PREFACE

This course was developed in response to both society's demands that the graduates of the public schools be literate contributing members of that society and the educator's need to afford relevance to the educational content of the school system. Career education has provided the opportunity for this demand and need to be fulfilled in an integrated venture.

Hoyt, et. al., in Career Education: What It is and How to do It, describe career education as a total concept permeating all of education merging the worlds of the home, the community, the school and the workplace "into a challenging and productive whole". (p. 3) It is not intended to conflict with, but to augment existing sound educational objectives.

In spite of the fact that educators must be recognizant of society's demands in relation to their own striving for relevance and legislatures' enactments of accountability measures, it may seem trite to remind ourselves of the obvious --- the students in the schools today are education's first responsibility. They are the persons to whom we must be accountable.

It was this underlying philosophy that prompted the application for and ultimate awarding of a VEA Part "D" Exemplary Project to field test the Manpower Management Information System (MMIS) at the local school district level. This project provided funds which allowed

the use of MMIS to document a needs analysis and the subsequent development of the course "Science Career Education". The development incorporated a flexibility into the course structure and content which allows revisions to be made easily in order to adapt this course to meet the unique needs of a specific locale or for future changes in the job market.

These materials were developed pursuant to a grant by the State Department of Education with funds available through the Vocational Education Amendments of 1968, Part "D" Exemplary. The freedom to express professional judgment in the development process was encouraged. Points of view or opinions expressed do not, therefore, necessarily represent official State Department of Education position or policy.

INTRODUCTION

"Science Career Education" was developed for incorporation into the Science curriculum of the Simi Valley Unified School District. The format is one that is not only amenable to the existing individualized science instruction at Simi Valley High School for which the course was written, but is one that with minor variation can be adapted to a variety of instructional patterns including the more traditional "lock step" approach.

The course is divisible into two major components as illustrated in the "Course Design", (p. 11). The first component is a "Core" which primarily but not exclusively promotes career awareness within the science career cluster. There is a specific emphasis upon the "non-professional" science careers. Non-professional careers will be defined as those requiring minimal or no postsecondary education as a prerequisite for employment. The promotion of career awareness is to be accomplished both directly by research and evaluation of the related careers and indirectly through the presentation of that knowledge and those skills prerequisite to more specialized career education. Although the initial purpose of the project was to develop a course for the educating of laboratory assistants, research has indicated that a broad spectrum of employment possibilities, including those of laboratory assistants, are dependent upon a common base of

science knowledge and skills. It is this common base that composes the knowledge and skills of the Core.

The second component consists of education for the indicated specialized vocational choices. An anticipated outcome of the first semester would be the student's selection of one of these specialized vocational choices to be pursued during the second semester. A further discussion of some of the aspects of this component can be found in the second semester overview which should be read prior to attempted implementation of the course.

This course in its current stage of development and proposed application, as a matter of practical necessity, has narrowed to three categories of specialization. "Current Stage of Development" as well as that section in the "Course Design" entitled "Miscellaneous" must be underscored since they are the indicators of the dynamic potential and timelessness of the second semester offering. Two of these alternative categories afford the education considered desirable to qualify a person for employment as laboratory assistants, either in a 1) medical laboratory or 2) non-medical (testing) laboratory. A third alternative is to provide further specialized education preparatory for continued postsecondary for an allied health career as is available in the Simi Valley Adult School.

These three were selected because it appeared that the greatest effective educational impact relative to local conditions

would be realized from that combination. A need for laboratory assistants combined with no recognized educational program of a value in existence justified the first two alternatives. A viable functioning allied health program requiring a basic science background in Adult Education justified the third alternative. The nurse's aide/ orderly alternative was eliminated as an initial option since there were existing programs available to fulfill this need. Another alternative, the prescription of a science program leading to a science career requiring the Baccalaureate Degree, its equivalent, or a higher degree, will be implemented at a later date.

As can be readily noted, the second component is the more flexible of the two. Whereas the time line for the first semester was one period per day, the flexibility of this component should allow for differing time requirements. This component, more than the Core, requires a tailoring to local employment projections, student interests and the availability of existing educational programs. This course development has reflected these criteria for this demographic locale. The content resulted from direct communication both with potential employers and with persons instrumental in the development and administration of related postsecondary educational programs. A complete treatment of this process can be found in the Vocational Education Planning Process Manual available from the Vocational Education Section, California State Department of Education. This

manual would be an invaluable resource in attempting to tailor this course to local needs.

Although this course has been developed to utilize a particular series of textbooks and supplementary materials this is neither to be construed as an endorsement of these materials nor an implication that other choices may not work equally as well. Regardless of the fact that some objectives were derived from textbook sources, they were selected for their inherent value and contribution to the fulfillment of the course goals. Other resource materials may be found to be applicable and of equal or greater value in a given situation. It should be noted, however, that a search for resource materials for the class did not unveil any one comprehensive resource. Even had one been located, it would not have been used inasmuch as it would have projected an inconsistency into the simulation experience. Within the spectrum of experiences that the student will be anticipated to encounter while employed, he will not be able to get all the answers from one source but will have to make decisions regarding the best available source of information. The laboratory simulation will pursue this premise and utilize a variety of information sources.

Since the intention of this course presentation was to retain flexibility allowing for the easiest possible adaptation and implementation into a local educational system, special directions to the instructors were kept to a minimum being replaced by an overview of the

corresponding units with some general suggestions included. Also since differing textbooks and laboratory investigations may be selected, the teacher's resource guide for each will be found to be the most effective resource for specific problems.

COURSE TITLE: Science Career Education

COURSE DESCRIPTION:

This is a course designed for the student interested in obtaining science knowledge and entry-level occupational skills qualifying him for employment in a variety of non-professional science careers (i.e., lab aides, medical lab assistants, nurse's aides, orderlies, etc.), or for entry into other postsecondary science career programs. This course emphasizes the acquisition of knowledge of basic science and training of specific laboratory skills.

The course is individualized with all students being introduced to the cognitive aspect via a "core" program which includes basic relevant materials in the areas of biology, chemistry, and physics. The specific laboratory skills training is individually prescribed to coincide with the student's chosen goals. The course content, both cognitive and psychomotor, has been selected as the result of interviews with potential employers. The student's goals are to be determined from the results of interest surveys (Career Planning Inventory -- CPI), aptitude tests (General Aptitude Test Battery -- GATB), psychological tests (Practical Aptitude Test for Nursing -- PSB), work observation, and personal counseling.

This is a one year course and is recommended for 12th grade students who have completed preliminary counseling in career planning

in the Career Guidance Center. Although the Core may be completed at an earlier grade to allow for prescription into the college-prep sequence, any other area of specialized training should be reserved for the 12th grade.

COURSE TITLE: Science Career Education

COURSE GOALS:

1. Identify career opportunities in science and science-related fields and indicate their corresponding educational and training requirements.

2. Explore a chosen science career cluster including the following considerations:
   a. level of preparation needed.
   b. ability, interest, and aptitude requirements.
   c. working conditions, salary, shift times, etc.
   d. employment opportunities.

3. Demonstrate an understanding of fundamental laboratory skills and safety procedures.

4. Demonstrate an understanding of the processes of observing and measuring.

5. Demonstrate an understanding of recording, representing, communicating, and interpreting data in written, pictorial, tabular, or graphic form.

6. Demonstrate a comprehension of a basic vocabulary of scientific terminology.

7. Demonstrate an ability to recognize basic laboratory apparatus and to describe its function.

8. Demonstrate an understanding of the characteristics of life.

9. Demonstrate an understanding of the structure and composition of matter, and of the chemical changes in matter.

10. Demonstrate an understanding of the physical properties of matter.

11. Demonstrate an understanding of energy and energy relationships.

12. Demonstrate a prescribed exit level proficiency as determined by the postsecondary goal choice. These choices may include minimal scientific literacy, specific job entry-level, or further education (including adult education, community college, four-year college, training schools, etc.).

COURSE DESIGN

First Semester

CORE

Careers Exploration
Employment Application/Potential
(1 week Introduction; 3 weeks concurrently with other course work)
Introductory Chemistry/Physics
(9 weeks)
Introductory Biology
(8 weeks)
Lab Safety/Techniques
General Labware Identification
Terminology
Data/Recordkeeping
(Concurrently as an integral part of the Introductory Chemistry/Physics/Biology)

Second Semester

LABORATORY ASSISTANT (Medical)*

Biochemistry Module
Medical/Hospital Laboratory Procedures

LABORATORY ASSISTANT (non-medical)*

Organic/Inorganic Chemistry Module
Quality Control/Technical Laboratory Procedures

NURSE'S AIDE/ORDERLY*

Nursing Skills
Hospital Practices
Basic Anatomy & Physiology

PROFESSIONAL SCIENCE CAREERS **

College Preparatory Courses: Chemistry, Physics, Biology, and Anatomy & Physiology

ADULT EDUCATION *

The Core would allow for enrollment into any of a variety of Allied Health courses offered at the Adult Education level and neither feasible to offer nor necessary to duplicate at the secondary level.

MISCELLANEOUS

To be developed as other related areas exhibit need.

*Preparation for employment at graduation
**College preparatory sequence

UNIT TITLE: INTRODUCTION Overview

This unit is one which practically never receives a priority of unit status and more often than not is relegated to an ad-lib, free-style presentation of what has been presented year after year. In reality it is this unit which ultimately can make it or break it for the students. Therefore utmost consideration must be given to the students insuring that they understand the purpose of the course, how it is to be conducted, and what are its requirements. More appropriately this should become an introduction for both the students and their parents. Past experiences have shown that when parents are involved from the very beginning, the rate of success of the program and the progress of the student is much greater than if the parents are not included. It would be of considerable value if this introduction with the parents were begun at the time of registration. The introductory parent letter could be sent home with the student as soon as they have registered in the course. Additionally, based on favorable experience, an evening meeting for all parents could be scheduled early in the course preferably during the first week. Further consideration should be given to have this meeting include both the students and their parents.

Regarding the introductory process in the classroom, the students should at this time have their course sylabus and it would

be well, in essence, to "walk through" each student performance objective. It is quite possible that this is the first time in the student's educational career that he will be faced with student performance objectives telling him what he is expected to learn. This introductory unit provides an excellent opportunity to develop a non-threatening atmosphere familiarizing the students with the anticipated function of performance objectives. Emphasize the importance of the use of the performance objectives as aids to study and as screens to eliminate non-essential materials, not as barriers.

The skills developed in this unit are primarily cognitive in nature although Objective #3, Unit I, Segment 1, "Become Familiar with Materials Available In and Use the Science Resource Room", is one stressing the psychomotor skills. It is recommended that the student is introduced to the Science Resource Room by the use of an audio-tutorial unit within the room itself. This, however, is one of those objectives uniquely developed for Simi Valley High School which may have limited application elsewhere.

As was implied earlier, the length of time required should be of the least concern; the primary concern should be the assurance that the students understand the procedures and the requirements of the course and hopefully providing them with a greater opportunity to be successful.

I / 1
Unit Segment

I. Unit Title INTRODUCTION

A. Segment Title Course Format/Purpose

B. Student Performance Objectives

1. Distinguish between the purposes of the first semester "Core" (exploration, guidance, general background skills) and those of the second semester (specialized education for employment/postsecondary education.

2. Explain the process of the individualized approach and select a pacing schedule.

3. Become familiar with materials available in the Science Resource Room (SRR) and demonstrate an appropriate use of those materials.

4. Communicate with parents/guardians the format, purposes and requirements of the course.

C. Segment Resources

Course Sylabus
"Science Career Education-Organization"
Parent Letter
Introduction to Resource Room (Tape)

I / 2
Unit Segment

I. Unit Title INTRODUCTION

A. Segment Title Course Requirements

B. Student Performance Objectives

1. Distinguish between ninety percent (90%) mastery level required for employment recommendation and seventy percent (70%) mastery level for science elective credit.

2. Identify consistent attendance and promptness as a part of the laboratory simulation and vitally related to evaluation.

3. Demonstrate an understanding that extra-class visitation and observation is required.

4. If not already completed, take the General Aptitude Test Battery (GATB) and the Practical Aptitude Test for Nursing (PSB), and receive post-test counseling from the appropriate persons.

5. Participate in the course as an employee in a simulated commercial laboratory.

C. Segment Resources

Course Sylabus
GATB and PSB
Career Counselor

SAMPLE LETTER

Dear Parent:

Your son/daughter is currently enrolled in the course "Science Career Education" (SCE). This is a new course for the Simi Valley Unified School District being offered at Simi Valley High School (1st year entry only). I would like to offer a brief explanation so that you may be familiar with the course and its objectives.

The course is designed to afford both science elective credit meeting graduation requirements and to offer a particular skills education for those students who may be interested in entering a science-related vocation. The content of the first semester includes research into the variety of science-related occupations with employment potential and a basic generalized science background for preparation for the second semester.

The second semester is one which will allow for specialization. At the end of the first semester each student should be qualified to select an area of vocational specialization. This first year there will be two major areas from which to choose. Specialized education will be given to qualify for employment in positions of Laboratory Assistant or Laboratory Helper in either medical or industrial laboratories. The alternative is to select from a variety of individualized study units in preparation for entry into postsecondary courses not feasibly taught at the high school including the Allied Health Courses offered at Adult Education. These include, but are not restricted to, Nurse Licensed Vocational (LVN), Operating Room Technician, Respiratory Therapy Technician, Dental Technologist, Dental Assistant and any future additions.

The classroom laboratory conditions, insofar as possible, will simulate those found "on the job". This will mean that certain school policies will be adhered to more rigidly and will have a greater effect on grading than may occur in some of your son's/daughter's other classes.

Two standards will be used in the class. A seventy percent (70%) mastery level will be required for science elective credit and/or for transfer credit into the Adult Education courses. A ninety percent (90%) mastery level will be required for recommendation for employment placement upon graduation. Hopefully a certain number of job openings will be available for placement in June. Attendance and

promptness to class will be most important. A maximum of five (5) days tardies/absentees will be allowed for placement recommendation unless an emergency situation occurs. An extension would be allowed only after a student-parent-teacher conference is held.

Additionally the class will be individualized and self-paced. A proposed time schedule is included within the course sylabus to which you may want to make reference. The primary responsibility will be upon the student to maintain this pace. He/she may progress on schedule or more rapidly than the schedule without any formal declaration. A student may opt, for a variety of reasons, to progress more slowly, but this option will require a student-parent-teacher conference. The student will be provided with one copy of the course sylabus. Any additional copies will be available for fifty cents (50¢).

Early in the first semester your son/daughter will be required to make arrangements to visit a variety of work situations or classes outside of the regular school day as homework. This is to provide him/her with an awareness of the variety of related vocational opportunities and assist in the making of a valid realistic career choice. The available visitation sites and contact persons will be provided.

Since the class requirements are somewhat different from most offerings, I would like to have you sign and return the enclosed form. If you have any questions, please call 526-0330. I would be most happy to try to answer them for you.

Sincerely yours,

Wayne C. Hollins
Curriculum Planning Specialist

WCH/pk

enc.

SCIENCE CAREER EDUCATION - ORGANIZATION

1. Locate the appropriate unit study guide and supplemental materials in the course sylabus.

2. Read the unit study guide identifying the performance objectives, applicable investigations, and unit resource aids.

3. Listen to the introductory unit tape in the Science Resource Room (SRR, S-7), take notes if necessary.

4. Study the assigned material with the objectives in mind.

5. Determine by pretest if supplementary review materials are necessary. Use as pretest indicates.

6. Use the recommended unit resource aids in the SRR.

7. Complete the required investigations:
   a. Select an investigation to do - read what the book has to say about it and check the investigation hints on the unit study guide and from the taped unit introduction.
   b. Check out lab materials from the lab assistant.
   c. Plan your lab time carefully, often more than one investigation can be done concurrently especially if more than one day is needed for completion.
   d. Make sure that a teacher observes and initials your lab work while it is in progress.
   e. Return cleaned equipment to the lab store room.
   f. Be prepared to discuss the investigation during its progress or upon its completion.
   g. All students will be required to have a bound laboratory notebook. It is strongly recommended that the type sold in the student store be used.

8. Get investigation write-ups and worksheets approved.

9. Review objectives and investigations, study for test. If available complete and self-grade preparatory test to aid in study.

10. Sign up in the SRR for the unit test one day in advance of testing.

11. Take the unit test in the SRR.

12. Obtain the results from the classroom instructor.

13. Following successful completion of the unit, proceed to the next unit study guide in the course sylabus.

- REMINDERS -

1. Read the assigned material related to the objectives thoroughly before doing any investigations.

2. Reading, written work, defining vocabulary words, completing reports, studying for tests, etc., should be done as homework.

3. Classtime should be used exclusively for lab work or group discussion.

4. The SRR is to be used for QUIET study, testing, and unit resource aids only!

5. Keep your laboratory notebook up to date and bring it, the course sylabus, and the textbook to class each day.

6. If you need more help than is available during class, come in after school or during lab-nite (to be arranged).

The purpose of this unit is threefold: 1) to stimulate an introspection on the part of the students in order to assist them in increasing their self-awareness, 2) to expand the students' perspectives regarding viable career opportunities which are complementary to their own goals and aptitudes, and 3) to provide a realistic evaluation of their specific career choice. These purposes are compatible with and fulfill Course Goals 1 and 2.

Two days will be spent explaining the methods of utilization of the available data sources. This is to include visits to the Career Information Center (CIC) and the introduction of those persons who can give guidance both in the use of the CIC and in providing career information. This unit is intended to be self-directed on the part of the student, thus this time should remain flexible assuring the instructor that all students have a grasp of the tasks expected of them. This also implies that the instructor is knowledgeable of the functioning of the CIC if a facility of this type exists. If such is not the case, the instructor should undertake and complete an orientation of the CIC prior to the beginning of this unit.

It is anticipated that following the introduction of this unit, the research necessary to fulfill the requirements of the Performance Objectives would occur outside the classroom as a form of homework

and concurrently with subsequent course units. It would be advisable for the CIC to schedule science-related career presentations during this time allowing the students in the course the opportunity to relate to persons active in the field of their career interests while at the same time introducing this career cluster to other students. It would seem in addition to the knowledge gained during these presentations that the interaction between the students in the course and those still "looking" could be invaluable.

Five weeks would be afforded to the students for completion of this unit. Evaluation of successful completion will be based upon the presentation of documentation either in written or oral form of fulfillment of the stated Performance Objectives. An Occupational Analysis Worksheet is provided to facilitate the completion of this part of the unit. Although some sample job descriptions and application forms have been included, if some could be obtained reflecting local agencies this would be of more value than the ones herein.

I. Unit Title CAREER EXPLORATION - SCIENCE

A. Segment Title Job Identification & Description

B. Student Performance Objectives

1. Given a list of science-related careers, analyze no less than three of which at least two are pre-professional, e.g., do not require a college degree. Include such items as working conditions, shift hours, salary, advancement and employment opportunities, educational/training requirements, etc.

2. Complete the General Aptitude Test Battery (GATB) if not already done and discuss the results, relative to your career research, with the Career Counselor.

3. Select a preferred science occupation and list the skills and knowledge needed in order to be proficient in that occupation.

4. Identify at least two other occupations related to your occupational choice which with further education you could be capable of accepting employment.

5. Distinguish between monetary and non-monetary benefits and list those that apply to any occupation within your chosen career cluster.

6. Document at least six (6) hours of work observation of which one-half the time must be in an occupation other than the one that is your preferred choice.

C. Segment Resources

Career Counselor
Career Guidance Technician
California Occupational Guides, EDD
Career Opportunities for Technicians & Specialists, Ferguson
Encyclopedia of Careers and Vocational Guidance, Vol. II
Ferguson
Occupational Analysis Worksheet

Unit Title CAREER EXPLORATION - SCIENCE (contd.)

C. Segment Resources (contd.)

Occupational Guidance Books, Finney Co.
Occupational Outlook Handbook, U.S. Department of Labor
Sample Job Descriptions
S.R.A. Occupational Exploration Kit -- Individual Briefs and Job Family Series Books
Vital Information for Education and Work (VIEW), microfilm

D. Introduction/Motivation (Comments)

Students will be introduced to the Career Information Center (CIC) stressing both the persons available for guidance and the data sources which can be used to fulfill the objectives for this unit.

II / 2
Unit Segment

I. Unit Title CAREER EXPLORATION - SCIENCE

A. Segment Title Identification of Educational Requirements

B. Student Performance Objectives

1. Identify different places/ways wherein education for a particular occupation can occur.

2. In case a preferred career requires postsecondary education, list and analyze both the prerequisites for and the demands of the postsecondary education.

C. Segment Resources

As listed for Unit II/Segment 1

D. Introduction/Motivation (Comments)

Continuation of those for Unit II/Segment 1

II / 3
Unit Segment

I. Unit Title CAREER EXPLORATION - SCIENCE

A. Segment Title Applications to Advancement

B. Student Performance Objectives

1. Identify industries, by name, where persons in your selected occupation might find employment.

2. Given the guidelines for responding to an interview, exhibit that knowledge in an interview (simulated) situation.

3. Given the guidelines for completing a job application form, exhibit that knowledge by filling out a job application completely and correctly.

4. Identify at least two ways of advancement and/or increasing one's salary.

C. Segment Resources

World of Work Audio/Tutorial Units
S.R.A. Guidance Series
Sample Application Forms
Newspaper "Want Ad" Sections
Plus resources as listed for Unit II/Segment 1

D. Introduction/Motivation (Comments)

Continuation of those for Unit II/Segment 1

OCCUPATIONAL ANALYSIS WORKSHEET

Reviewer:

Job Title:

Related Job Titles (1-2):

Job Description:

Skills Needed:

Work Conditions:

Training/Educational Requirements:

Educational Sources:

Average Salary Range:

Advancement Opportunities:

Usual Shift Hours:

Employment Opportunities:

LABORATORY GLASSWARE CLEANING

LOCATION:	Laboratory Procedures, West
SCHEDULE:	Plant
NATURE OF WORK:	To provide thoroughly clean glassware for laboratory units.
FUNCTIONS OF JOB:	Provides thoroughly clean glassware for use in all areas of the laboratory. Responsible for picking up used glassware from laboratory units; washing glassware by hand or machine using special acid or other washing techniques in accordance with established procedures; and delivering clean glassware to the laboratory units.
MINIMUM EXPERIENCE:	None required.
ON-THE-JOB TRAINING:	One month to become familiar with different procedures used, equipment operation, and needs of laboratory units.
EQUIPMENT USED:	Automatic washing equipment.
PERSONAL REQUIREMENTS:	Must work according to details of washing procedure. Has contacts with all laboratory units requiring cooperation and even temperament. Good manual dexterity is important.
PHYSICAL DEMANDS:	Ability to lift 40 lbs.
WORK CONDITIONS:	Exposure to acids and possibility of cuts and burns from broken glass and hot water.
INITIATIVE AND RESOURCEFULNESS:	Requires initiative to meet needs of various laboratory units.
RESPONSIBILITY:	Responsible for following procedures carefully and providing thoroughly clean glassware for laboratory units.
SUPERVISION EXERCISED:	None.

LABORATORY ASSISTANT I

LOCATION:	Laboratory Procedures, West
SCHEDULE:	Plant
NATURE OF WORK:	To assist laboratory technologists by performing regular procedures which are permissible under California law.
FUNCTIONS OF JOB:	To assist laboratory technologists by performing the regular procedures which are permissible under California law. Responsible for following detailed procedures established by licensed personnel and performing such regular functions as distribution of approved test results to other laboratory units for transmittal to clients, transferring specimen qualitatively to appropriate receptacle on instrument or equipment, keeping reagent containers filled.
MINIMUM EXPERIENCE:	High school graduate is desirable. Courses in chemistry and science would be desirable.
ON-THE-JOB TRAINING:	Up to three months is required to become familiar with specific responsibilities, location of supplies, and overall operation of the laboratory unit assigned.
EQUIPMENT USED:	Various types of mechanical laboratory equipment.
PERSONAL REQUIREMENTS:	Must be able to work rapidly and accurately, follow detailed instructions precisely, work well with others, and pay strict attention to detail.
PHYSICAL DEMANDS:	Some parts of work require heavy lifting.
WORK CONDITIONS:	Exposure to cuts from broken glass and possible health hazard from handling specimens.
INITIATIVE AND RESOURCEFULNESS:	Must demonstrate that he is capable of handling large volume of work within time limits. Must also demonstrate that he has the ability to follow detailed instructions precisely and to keep operating equipment supplied with proper reagents.

LABORATORY ASSISTANT I (contd.)

RESPONSIBILITY: Responsible for following detailed work instructions precisely and for performing specific tasks within proper time limits and with a high degree of accuracy.

SUPERVISION EXERCISED: None.

LABORATORY ASSISTANT II

LOCATION: Laboratory Procedures, West

SCHEDULE: Plant

NATURE OF WORK: To assist laboratory technologists by performing the more complex procedures which are permissible under California law.

FUNCTIONS OF JOB: To assist laboratory technologists by performing the more complex procedures which are permissible under California law. Responsible for following detail procedures established by licensed personnel and performing such functions as: preparation of culture media, assisting in location of specimens, distributing approved test results to other laboratory units for transmittal to clients, staining slides for microscopic examination, preparation of mechanical equipment for operation, transferring specimen qualitatively to appropriate receptacle on an instrument, keeping reagent containers filled, transcribing results which have been previously recorded by licensed personnel.

MINIMUM EXPERIENCE: High school graduate is desirable.

ON-THE-JOB TRAINING: A minimum of three years prior experience as a laboratory assistant.

EQUIPMENT USED: Uses various types of mechanical laboratory equipment.

PERSONAL REQUIREMENTS: Must be able to work rapidly and accurately, follow detailed instructions precisely, work well with others, and pay strict attention to detail. Must perform tests with minimum supervision and work closely with laboratory assistants and other laboratory personnel. Integrity of reporting results is essential.

PHYSICAL DEMANDS: Some parts of work require heavy lifting.

WORK CONDITIONS: Exposure to cuts from broken glass and possible health hazard from handling specimens.

INITIATIVE AND RESOURCEFULNESS: Both are required to conduct tests independently, recognize variances, and take necessary action to correct variances. Must possess initiative and resourcefulness in assisting licensed laboratory personnel with more complex procedures authorized under California law. Such procedures may include calling attention of licensed personnel to unusual operation of equipment, and in keeping equipment supplied with reagents, and in the location of missing specimens or test requests.

RESPONSIBILITY: Responsible for following instructions precisely and calling immediate attention to licensed personnel of any deviation from pre-established standards. Responsible for accuracy of test performed, results reported and keeping up-to-date in the field of clinical testing.

SUPERVISION EXERCISED: May help in the training of laboratory assistants under the supervision of licensed laboratory personnel and/or supervision. Personal technical direction of work of laboratory assistants. May also assist in training of other laboratory technologists.

REAGENT PREPARATION I

LOCATION: Laboratory Procedures, West

SCHEDULE: Plant

NATURE OF WORK: To prepare and provide high quality reagents for laboratory units when needed, and to maintain an adequate inventory of reagent ingredients to assure that laboratory needs will be met.

FUNCTIONS OF JOB: To prepare and provide high quality reagents for laboratory units when needed. Responsible for selecting correct ingredients, preparing them exactly from formula, identifying completed reagents properly and delivering them to the proper laboratory units. This requires knowledge of chemicals, chemical symbols, metric system measurements, and basic chemical mathematics.

To maintain an adequate inventory of reagent ingredients to assure laboratory needs will be met. Responsible for inventory of existing ingredients, recording use of ingredients and re-ordering ingredients ahead of time so that there will be enough ingredients on hand to meet the needs of the laboratory units.

MINIMUM EXPERIENCE: High school graduate with chemistry and mathematic courses being highly desirable.

ON-THE-JOB TRAINING: One month to become familiar with reagent demands, ingredients, formulas, measurement equipment and calculations for reducing or increasing proportions based on potency of ingredients or amount of reagent needed.

LABORATORY EQUIPMENT USED: Balances, colormeters, and other standard equipment and glassware.

PHYSICAL DEMANDS: Must be capable of lifting, shaking and carrying 60 lbs. several times each day.

WORK CONDITIONS: Subject to burns from chemicals and cuts from glassware.

INITIATIVE AND RESOURCEFULNESS: Both are required to a great extent to plan and complete his work schedule so that quality reagents are available within time limits and adequate inventories of reagent ingredients are maintained.

RESPONSIBILITY: Responsible for accurate and careful selection of ingredients, measurements, calculations, and preparation exactly from formula of reagents used by laboratories. Poor quality reagents may cause inaccurate laboratory test results, loss of laboratory operation time, and damage to specimens sent for testing.

REAGENT PREPARATION II

LOCATION: Laboratory Procedures, West

SCHEDULE: Plant

NATURE OF WORK: To prepare and provide high quality reagents for laboratory units as needed, and to assist in training of new Reagent Preparation personnel. To maintain adequate weekly inventory of all chemicals and all materials listed in Central Supply. To assist Automated Chemistry personnel in putting reagents on-line as required. To learn to perform jobs in other departments at a maintenance level in order to provide adequate back-up for vacations, illness, etc.

FUNCTIONS OF JOB: To prepare and provide high quality reagents for laboratory units as needed. Responsible for careful selection of correct ingredients, identifying complete reagents properly, putting them on-line. Standardizing, adjusting baselines, trouble shooting reagents on Automated Chemistry machines as required. These functions require knowledge of chemicals, chemical symbols, metric system measurements, basic chemical mathematics, and equipment basic to a chemistry laboratory.

MINIMUM EXPERIENCE: High School graduate with courses in Chemistry and Mathematics is highly desirable. Two years experience at Reagent Preparation along with a proven ability to produce quality reagents. Working knowledge of most machines in Automated Chemistry and an ability to trouble shoot reagents as regards their use on those machines. A proven record of versatility in a clinical laboratory.

LABORATORY EQUIPMENT USED: Must have working familiarity with equipment such as pH meters, various balances, automated chemistry machines, and other standard equipment and glassware.

PHYSICAL DEMANDS: Must be capable of lifting, shaking, and carrying 60 pounds several times each day.

WORK CONDITIONS: Subject to burns from chemicals and cuts from glassware. Must be able to take constructive criticism; must be capable of maintaining an even disposition in the face of adverse situations.

INITIATIVE AND RESOURCEFULNESS: Both are required to a great extent to plan and complete his work schedule within time limits, to be sufficiently flexible to meet STAT demands, to be able to trouble shoot reagent problems as they pertain to Automated Chemistry machines, to provide supervisor with an adequate weekly inventory of chemicals and materials needed for Reagent Preparation and Central Supply, to assist in training of new Reagent Preparation Personnel, and to perform jobs in other departments for illness, vacation, etc., to learn and perform regular radiation safety jobs as outlined by the Radiation Safety Committee or by the Radiation Safety Officer.

SPECIMEN PREPARATION I

LOCATION: Laboratory Procedures, West

SCHEDULE: Plant

NATURE OF WORK: To accurately receive, identify, perform initial processing, and deliver specimens and laboratory work records to proper laboratory units.

FUNCTIONS OF JOB: To accurately receive and identify incoming specimens and test requests. Responsible for carefully opening incoming specimen mailing containers and checking thoroughly the contents of the containers to assure that specimens and test requests are correctly identified, are complete, and are correct. This requires a thorough knowledge of the types of tests performed by the laboratory units, the type of specimen required, the quantity of specimen required, the proper containers for each type of test, and the proper data which must accompany the specimen on the test request.

To perform initial processing of specimens. Responsible for maintaining correct identification of specimens by run, tray, and sample number, for properly centrifuging and pouring specimens into laboratory test containers, and for transferring correct laboratory number to the test containers. This requires following established procedures exactly.

To deliver prepared specimens and necessary work records to proper laboratory units. Responsible for promptly delivering specimens and proper work sheets or records to each laboratory for testing, for delivery of complete and accurate test requests to data processing, and for locating missing specimens or test requests. This requires a thorough knowledge of laboratory operating procedures, time schedules and which specimens and requests are ready for testing versus those which will need additional follow-up by others prior to testing.

Responsible for keeping accurate count of mailing containers received, time received, time specimens were delivered to laboratory units, time test requests were delivered to data processing, and that mark sense test result report cards are accurate.

Responsible for keeping work area clean and orderly and cleaning centrifuges after use.

MINIMUM EXPERIENCE: None required, although high school courses in chemistry would be desirable. Knowledge of key punch machine is desirable, but not necessary.

ON-THE-JOB TRAINING: Up to three months required to become familiar with laboratory terminology, procedures, and various test requirements.

EQUIPMENT USED: Centrifuges, copy machines, keypunch machine.

PERSONAL REQUIREMENTS: Must be able to work rapidly and accurately with limited supervision without becoming flustered. Works as a team member and must be able to cooperate with others. Attention to detail is essential.

PHYSICAL DEMANDS: Some parts of work require heavy lifting.

WORK CONDITIONS: Exposure to cuts from broken glass and possible health hazard from handling speciments.

INITIATIVE AND RESOURCEFULNESS: Must possess initiative in processing large volume of incoming specimens within time limits as well as in calling attention of supervision to specimens or requests which need to be followed up prior to processing. Resourcefulness needed to locate missing specimens or test requests.

RESPONSIBILITY: Responsible for proper identification and preparation of specimens for laboratory testing. Errors can make test result invalid and cause re-test to be necessary which is extremely

damaging to Laboratory Procedures' relationship with its clients. Human life may be dependent upon accuracy of identification and preparation of specimens.

SUPERVISION EXERCISED: None.

SPECIMEN PREPARATION II

LOCATION: Laboratory Procedures, West

SCHEDULE: Plant

NATURE OF WORK: To accurately subdivide specimens received for multiple testing and maintain positive identification of the original specimen in addition to accurately receive, identify, perform initial processing, and deliver specimens and laboratory work records to proper laboratory units.

FUNCTIONS OF JOB: To accurately subdivide specimens received for multiple testing and maintain positive identification of the original specimen. Responsible for carefully dividing original specimens into separate tubes for processing by various laboratory units. This requires thorough knowledge of the quantity requirements for all tests and the special handling requirements for all specimens.

To accurately receive and identify incoming specimens and test requests. Responsible for carefully opening incoming specimen mailing containers and checking thoroughly the contents of the containers to assure that specimens and test requests are correctly identified, are complete, and are correct. This requires a thorough knowledge of the types of tests performed by the laboratory units, the type of specimen required, the quantity of specimen required, the proper containers for each type of test, and the proper data which must accompany the specimen on the test request.

To perform initial processing of specimens. Responsible for maintaining correct identification of specimens by run, tray, and sample number, for properly centrifuging and pouring specimens into laboratory test containers, and for transferring correct laboratory number to the test containers. This requires following established procedures exactly.

To deliver prepared specimens and necessary work records to proper laboratory units. Responsible for promptly delivering specimens and proper work sheets or records to each laboratory for testing, for delivery of complete and accurate test requests to data processing, and for locating missing specimens or test requests. This requires a thorough knowledge of laboratory operating procedures, time schedules and which specimens and requests are ready for testing versus those which will need additional follow-up by others prior to testing.

Responsible for keeping accurate count of mailing containers received, time received, time specimens are delivered to laboratory units, time test requests were delivered to data processing, and that mark sense test result report cards are accurate.

Responsible for keeping work area clean and orderly and cleaning centrifuges after use.

MIMIMUM EXPERIENCE: Considerable experience in specimen preparation work is desirable. Practical experience in making accurate visual measurements is desirable. High school chemistry desirable.

MIMIMUM POSITIONS NECESSARY: Present workload requires a minimum of four positions at this time.

ON-THE-JOB TRAINING: Two years' prior experience in Specimen Preparation I, plus ability to work with a minimum of supervision and must demonstrate continued initiative and dependability.

EQUIPMENT USED: Centrifuges and copy machines.

PERSONAL REQUIREMENTS: Works on own most of the time and therefore, must be capable of working rapidly, accurately, and not get flustered. When working with other specimen preparation employees, must be cooperative. Attention to detail and ability to make

accurate visual measurements. Past work record is an important factor in qualifying for Specimen Preparation II.

PHYSICAL DEMANDS: Occasional heavy lifting.

WORK CONDITIONS: Exposure to cuts from broker glass and possible health hazard from handling specimens.

INITIATIVE AND RESOURCEFULNESS: Initiative required to process large volume of incoming specimens within time limits, to plan own work schedule in deciding specimens, and to indicate which specimens need to be followed up on prior to processing. Must be resourceful to locate missing specimens or test requests, and to achieve special handling of certain specimens.

RESPONSIBILITY: Responsible for accurate measurement and identification of divided specimens, proper identification and preparation of specimens for laboratory testing. Errors can make test result invalid and cause re-test to be necessary, which is extremely damaging to Laboratory Procedures' relationship with its clients. Human life may be dependent upon accuracy of identification and preparation of specimens.

SUPERVISION EXERCISED: May act as supervisor or lead in specimen preparation area in absence of supervision.

UNIT TITLE: LABORATORY ORIENTATION Overview

Of all the units of the Core section of the course this unit has the potential for the greatest amount of individualization, thus the greatest dependence upon a pre-test. The performance objectives for the individual segments can summarily be referred to as the most basic laboratory skills prerequisite to any continued laboratory work. It should be emphasized that the mastery of these skills will necessarily be exhibited time and time again during the progression through the course, and that there will be a continuing evaluation relative to a demonstration of their mastery. The determination to include these skills resulted from interviews of potential employers.

Stressing the high level of mastery, in some cases one hundred percent (100%), should help develop the concept that the classroom laboratory will, as much as is possible, simulate an actual laboratory. Nor should it be unreasonable to expect a continued high level of competence in these laboratory skill areas. The nurture of the combined concepts of the reality to be faced outside the classroom and the responsibilities that these realities demand must of necessity begin with this unit, if not sooner. It may not need stating, but in some manner the idea of responsibility must result from an awareness of the critical nature -- in some cases life and death -- of the decisions to be derived from the laboratory test results. A concept of

responsibility based simply on adherence to a set of regulations should be avoided.

Inasmuch as the first laboratory manipulations occur in this unit, a comment from a prior unit is worth restating -- the assurance that the student has a confident grasp of the basic laboratory skills is of far greater importance than the amount of time required to instill this confidence. These skills will function as integral components of the laboratory simulations.

This would be a good time to acquaint the students with the concept of the laboratory simulation. In the simulations they will be functioning in a role defined by a job description. They will work cooperatively with other persons in the laboratory with other job descriptions.

III / 1
Unit Segment

I. Unit Title LABORATORY ORIENTATION

A. Segment Title Safety in the Laboratory

B. Student Performance Objectives

1. Identify and observe safety regulations related to the following laboratory procedures: heating liquids (flammable/non-flammable), pouring liquids, hot glass (bending), mixing chemicals, acids and bases, glass tubing, pipettes, centrifuge, burners, test tubes and any other related laboratory procedures/items.

2. Identify by location/function, and use when appropriate, the following safety apparatus: goggles, aprons, fume hood, fire extinguisher, fire blanket, eye wash, and any other items noted.

3. Perform simple first-aid for any laboratory injuries. (Note that the first step is to report accident to the instructor.)

4. Identify and observe laboratroy regulations for waste disposal and cleanliness.

C. Segment Resources (Title/Page numbers)

Interdisciplinary Approaches to Chemistry-Reactions and Reason (IAC-R & R), p. 91
Chemical Technicians' Ready Reference Handbook, Index
Handout Sheet of Laboratory First-Aid
Safety Worksheet

D. Introduction/Motivation (Comments)

Continuation in course is contingent upon passing safety test at 100% mastery level.
Laboratory grades both now and in the future will reflect continued observance of the laboratory and safety regulations.

III / 2
Unit Segment

I. Unit Title LABORATORY ORIENTATION

A. Segment Title Labware/Apparatus Identification & Use

B. Student Performance Objectives

1. Correctly operate and read Dial-O-Gram (vernier scale) balance.

2. Correctly operate and read analytical balance.

3. Select appropriate burner for intended laboratory procedure and correctly light and adjust it.

4. Identify visually and by function the following labware: flasks (volumetric, Erlenmeyer, boiling), beakers, test tubes (chemical, culture), graduated cylinders, pipettes, petri dishes, mortar and pestle, crucibles, and any other items as noted.

C. Segment Resources (Title/Page numbers)

Molecules to Man (MtM), p. 527
Labware Identification, Audio-Tutorial (A/T)
Vernier Scale Worksheet
Analytic Balance Guide

D. Introduction/Motivation (Comments)

Continuation in course is contingent upon successful completion of the labware identification and laboratory skills test at the 100% mastery level.
Laboratory grade will reflect continued ability to identify proper labware and correctly operate the laboratory apparatus.

ANALYTIC BALANCE (Sartorius 2842) GUIDE

Steps in weighing using the analytic balance. (Refer to accompanying page of diagrams.)

1. Adjust zero point.
   a. Move arrest lever (A) to release (position 3, Fig. 2).
   b. Turn zero-point adjustment knob (B) until reading mark coincides with the zero line of projection scale (Fig. 3).
   c. Move arrest lever (A) to arrest (position 1, Fig. 2).

2. Pre-weigh.
   a. Place sample on balance pan -- close door.
   b. Move arrest lever (A) to pre-weigh (position 2, Fig. 2). The coarse weight can now be seen on the optical scale (Fig. 4).
   c. Read the number <u>below</u> the index mark. Weight: 72 g.

3. Dial the weight knobs (C, D) to the number reading <u>below</u> the index mark. (Fig. 5).

4. Weigh the sample.
   a. Move the arrest lever (A) to release (position 3, Fig. 2).
   b. Allow the projection scale to stop moving.
   c. Move the micrometer knob (E) until the index mark coincides with one line of the projection scale. Example weight: 72.5234 g. (Fig. 6).
   d. Arrest the balance.
   e. Remove the sample.
   f. Zero the balance.

<u>Basic Rules</u>

1. Never place chemicals directly on pan; always use weighing paper (take into account its "weight" when doing computations).

2. Use forceps to place samples on and remove them from the pan.

3. "Weigh" with the glass doors closed.

4. Always zero balance after use.

5. Keep balance <u>and</u> table clean.

sartorius

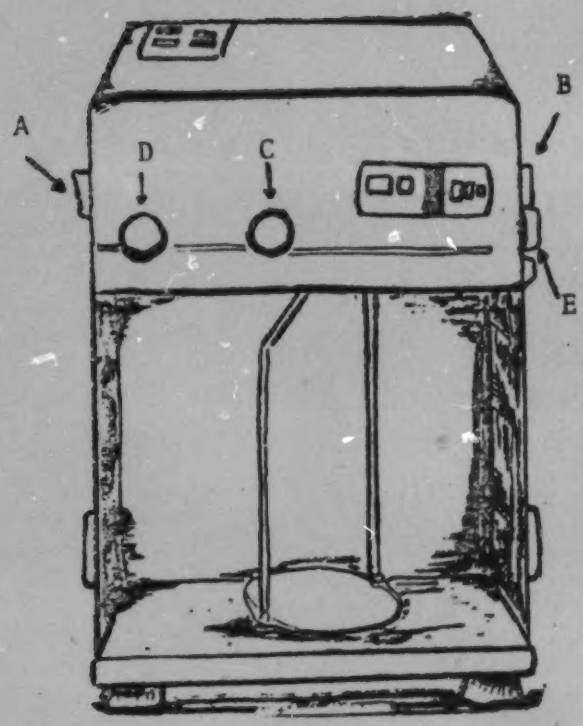


Fig. 1

A - Arrest lever

B - Zero point adjustment knob

C - Knob to dial weights 1 - g

D - Knob to dial weights 10 - 150g

E - Micrometer (fine setting knob)

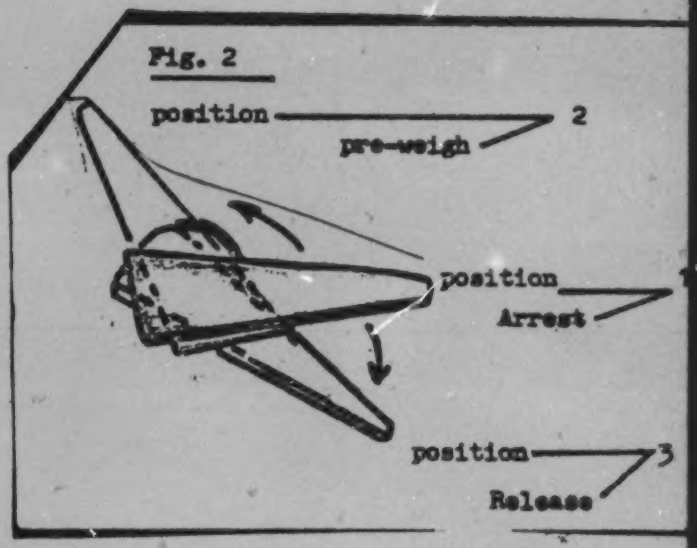


Fig. 2

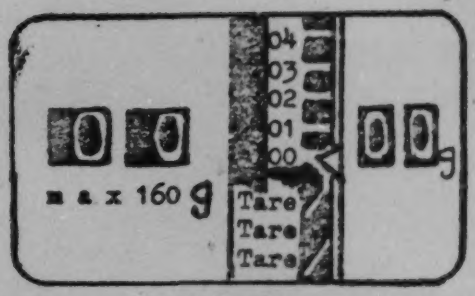


Fig. 3

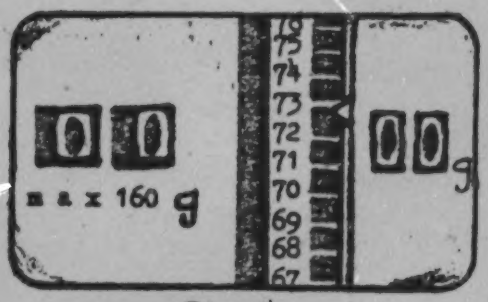


Fig. 4

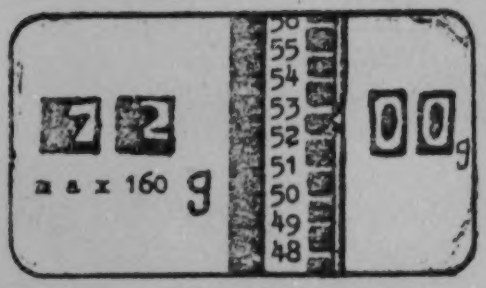


Fig. 5

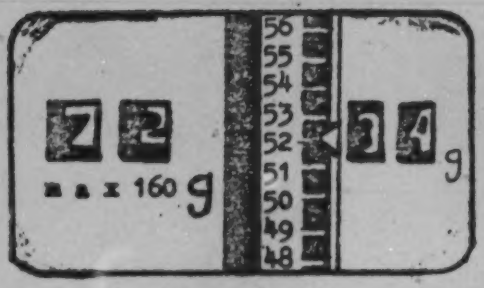


Fig. 6

I. Unit Title LABORATORY ORIENTATION

A. Segment Title Biology/Chemistry: Human Activities

B. Student Performance Objectives

1. Distinguish between observation and interpretation.

2. Distinguish between qualitative and quantitative observations.

3. Identify observations that can indicate that a reaction has occurred between two substances.

4. Observe physical and chemical phenomena and accurately report observations. (IAC-R&R:A-2, MtM:1-B)*

5. Devise a classification scheme for any given set of materials. (IAC-R&R:A-4, I IS:Bio:2-6)*

6. Report laboratory observations accurately (honestly) and neatly.

*Parenthesized references are applicable laboratory investigations.

C. Segment Resources (Title/Page numbers)

IAC-R&R, p. 12-17
MtM, p. 2-14, 29-36
Ideas and Investigations in Science: Biology (IIS:Bio), Vol. 2
Introduction to Segment (Tape)
Variation on A-2 -- Kit w/numbered tubes (keyed for replacement) A/T
"Techniques for Recording Observation" A/T

I. Unit Title LABORATORY ORIENTATION

A. Segment Title Biology/Chemistry: Measuring

B. Student Performance Objectives

1. Explain the difference between mass and weight.

2. Measure the mass and volume of a solid object, reporting both values to the precision of the respective instruments used. Use both the Dial-O-Gram and the analytical balances when applicable.

3. Measure the volume of a liquid reporting the value to the precision and correct choice of the respective instruments used. Use volumetric flasks, graduated cylinders, and pipettes (LAP: Liquid Volume Measurement).

4. Conduct a quantitative investigation (MtM 1-7 or 1-A) and record the results.

5. Construct a graph of the data obtained from either of the above investigations containing paired values (i.e., mass-volume, volume-time, volume-concentration).

6. Read data from a graph of paired values.

7. Use metric units to report laboratory measurements.

C. Segment Resources (Title/Page numbers)

IAC-R&R, p. 18-23
MtM, p. 13-27
LAP on Liquid Volume Measurement
Graph Worksheet
Introduction to Segment (Tape)
"The Metric System"* (A/T) An Audio-Tutorial Approach to Chemistry, Houghton Mifflin, Co.
"Collecting and Plotting Data -- 1) Linear Graphs, 2) Non-linear Graphs", Biotech: Communication Skills Corp.

*Supplementary for students needing further practice/instruction.

FIRST AID IN THE LABORATORY

1. The first and MOST basic rule of First-aid is the prevention of accidents and self-protection. Be alert at all times and use your best common sense. CARELESSNESS IS THE MOST COMMON CAUSE OF ACCIDENTS.

   Retain this and your safety regulations worksheet and follow their rules diligently.

2. In case an accident does occur always get help, preferably the instructor. For corrosive liquids/chemicals in the eyes or fire, get nearest available person for help IMMEDIATELY. (Likewise be prepared to help anyone else.)

   a) Corrosive liquids/chemicals in eyes: wash eyes for several minutes with eye wash. IMMEDIATELY have someone else tell instructor.

   b) Fire (clothes): wrap/get wrapped in fire blanket.

   c) Fire (other): if burner is involved, turn off gas, extinguish with fire extinguisher.

   d) For any injuries get First-aid from the instructor before going to the school nurse.

SAFETY WORKSHEET

Directions: Using available resources including your text, reference books, and audio tapes in the classroom and Science Resource Center, list all of the rules pertaining to the following topics and if applicable an item's location.

Goggles-

Laboratory apron-

Fire extinguisher-

Fire blanket-

Use of pipette-

Tasting/smelling chemicals-

SAFETY WORKSHEET - page 2

Mixing chemicals-

Use of test tube-

Use of burner-

Use of fume hood-

Working with glass tubing
(include thermometers)-

Acids and bases-

Centrifuge-

Work area-

"LABORATORY INVESTIGATION AND RECORDING PROCEDURES"

(Script)

While listening to this tape, you should have the worksheet from your sylabus entitled "Laboratory Investigation and Recording Procedures". Unless there are specific instructions telling you to follow another procedure, the procedure that is now being elaborated is the one that you will use for all lab investigations.

In order to obtain materials for a given experiment or investigation, go to the central storage area and submit a request to the laboratory attendant for laboratory materials by investigation number. The laboratory materials are contained in boxes referred to as lab kits. For example, your first experiment is A-2. In getting the materials for this experiment you would request lab kit A-2. When you get the lab kit you will see a card listing the contents; check to make sure that the actual contents do in fact match with the list. Do not accept a lab kit which is incomplete. Make sure that the lab attendant has it completed; also report any discrepancies to your instructor. You will then be asked to initial your card indicating that you have accepted the lab kit and that it does contain a full complement of items listed.

After you have completed the investigation, return the lab kit to the central storage, check off your name. Make sure that all items

are in the kit and that they are all cleaned.

For the purpose of recording and maintaining your data a regular quadrille line laboratory book is preferred. No Peechee folders or any other loose-leaf type folders are acceptable. If you want to get other than the quadrille line laboratory book, check with your instructor first to obtain his approval. Prior to actually conducting the investigation, make a note of all of the hints that may be found either in the textbook, in the introductory unit tapes, or in your sylabus. You will use experiment A-2 again as an example.

Checking the sylabus for experiment A-2 note that instructions are given for the proper salvage of the metal. These are the kinds of things to look for. When making observations during the progression of an investigation always record all data <u>as</u> you collect it. Do not presume that you are going to remember to record it later. The following steps should allow for easier collection and recording of your data:

1. Read the instructions for the experiment to determine the categories of data that you are planning to collect and to see if they have any interrelationship; for instance, volume with time, color change with volume, or temperature change with time. There may be any number of possible combinations of these. Note in your lab workbook any that you find. In most instances the instructions will identify sample tables.

2. Based on your reading of the experiment and if no example is given, devise some means for collecting your data. In most instances this will just be a simple table, and the directions for the experiment will inform you as to the proper means of recording the data collected.
3. Make sure that you label your data. Again, as I stated previously, do not assume that you will remember what the data categories are. Record them -- a series of numbers without labels will be of no value to you or anyone else.
4. Perhaps the most important idea, if any one idea regarding data collecting and recording can be labeled <u>most</u> important, is that there are no wrong results although the degree of validity may vary. You record what you see. If you have questions about the reliability or validity of your data, you can check with other people. You may want to duplicate your experiment. The most important thing that you can do if there is a variation is to determine why such a variation did occur and what means can be taken to increase the validity.
5. To this point your record of data may be very jumbled and you may have a rather messy notebook. Do not be concerned if you can read it and make sense from it. The final presentation of data in your lab book, however, whether it is a table, a graph, a chart, or any other type of display, must be <u>NEAT</u>.

If the display requires straight lines use a straight edge to do your drawing. Do not free hand these final presentations of data. The final presentation also is not complete unless it has been fully labeled. A name must be given to the display and each data item must be labeled regarding its value. Refer to the worksheet for examples of correct and incorrect data presentations. Note that in order to make tables neater, the headings include the units of measurement in parantheses; for instance, (ml.), (gm.), (^{o}C). If these units are included in the heading, they do not have to be repeated in the columns or rows of data. The numbers should be whole numbers with fractions expressed as decimal fractions. If the decimal fraction is less than one always preceed the decimal point with a zero. Note the examples in the worksheet.

6. When there are calculations, if they are hand calculations, include these in your laboratory book. If they are done on the computer, tape or staple the computer calculations on a page. If the computer calculations need labeling, label the data that has been inserted into the computer and label the answers that the computer has given you.
7. Complete the practice exercises and self-check them with the answer sheet available from your instructor.

8. If you feel that you need some help or review on the proper techniques of producing graphs, there is an audio-tutorial unit entitled "Graphs". Complete the practice exercises on the worksheet and have them approved by your instructor.

If there are any questions regarding this particular tape, see instructor.

This unit provides the opportunity to stress the continuing evaluation of the laboratory and safety techniques introduced in Unit III. The emphasis upon a confident and effective performance of laboratory manipulations as initiated in the last unit should continue with additional reinforcement.

At the risk of waxing eloquent without statistical documentation, the following will be declared: There is a greater possibility of getting "correct" results consistently when the emphasis is upon proper laboratory techniques than when the emphasis is placed on the result rather than the procedure. This is not to say that the results should not be considered, but rather, that as so often happens, they should not be considered as ends in themselves. It is perceived that as skill proficiency increases the validity of the results will likewise increase.

The individualized approach lends itself to this philosophy. The student can utilize alternative investigations and take the amount of time necessary to achieve success for any given psychomotor skill. Any variety of Chemistry Laboratory Workbooks and/or the instructor's own experiences can provide a source for the alternative exercises to be used for additional practice.

This and the following unit are the ones with the purpose of developing those skills which the student will utilize during the second

semester in his/her area of specialization. The completion of Unit II and the initial selection of the student's choice of an area of specialization should occur within the time span covered by this unit.

I. Unit Title INTRODUCTORY CHEMISTRY

A. Segment Title Investigating Physical Properties

B. Student Performance Objectives

1. Explain the importance of objective unbiased observations in science and list ways bias can be introduced.

2. Distinguish between pure substances (elements and compounds) and mixtures.

3. Separate the components of a mixture, using processes appropriate to the mixture such as dissolving, subliming, filtering. (A-11)

4. Calculate the mass percentage composition of a mixture from measured values. (A-10)

5. Determine the relative solubility of a substance in various solvents and at different temperatures. (A-11)

6. Determine the density of a substance from a mass-volume graph, or calculate the density from direct mass-volume measurements, and express the density in correct units. (A-13)

7. Determine freezing and boiling points of pure liquids and mixtures. (A-13)

8. Use the Handbook of Chemistry and Physics to compare experimental and accepted values.

9. Formulate an explanation for deviations between laboratory results and accepted values.

10. Describe or recognize features of the kinetic molecular theory.

11. Account for the observable physical properties and changes of state of solids, liquids, and gases by means of the kinetic molecular theory.

12. Identify an unknown substance from collected data on its density, boiling point, freezing point, and solubility. (A-18)

C. Segment Resources (Title/Page numbers)

IAC-R&R (Investigations A-10, A-11, A-13), p. 24-35
Handbook of Chemistry and Physics
Segment Introduction (Tape)
"Definition of Chemistry and the Use of the Centigrade, Fahrenheit, and Kelvin Temperature Scales" (A/T)*
An Audio-Tutorial Introduction to Chemistry, Houghton Mifflin, Co.

*Supplementary for students needing further practice/instruction.

I. Unit Title INTRODUCTORY CHEMISTRY

A. Segment Title Chemical Changes

B. Student Performance Objectives

1. Distinguish between chemical analysis and synthesis. (A-20)

2. Recognize evidence for chemical change. (A-20, 21)

3. Demonstrate decanting, removal of moisture from a precipitate, and dissolving a precipitate. (A-21)

4. Classify a solution as either acidic, basic, or neutral, given the solution and pH paper and/or a pH meter. (A-21, 7-A)

5. Write word and symbolic equations.

6. Classify chemical reactions by type from among oxidation-reduction, neutralization, precipitation.

7. Determine the relative masses of the elements in a binary compound, given data similar to those in this experiment. (A-22)

C. Segment Resources (Title/Page numbers)

IAC-R&R (Investigations A-20, A-21, A-22), p. 36-52
MtM, p. 133-34
"Using the pH Meter" Worksheet
Programmed Unit in Chemistry: Chemical Symbols, Prentice-Hall.
Programmed Unit in Chemistry: Chemical Formulas and Names, Prentice-Hall.
"Decimals, Signed Numbers, and Solving Simple Linear Equations"* An Audio-Tutorial Introduction to Chemistry, Houghton Mifflin Co.
"Electrolytes, Acids, Bases and Salts"* An Audio-Tutorial Introduction to Chemistry, Houghton Mifflin Co.

*Supplementary for students needing further practice/instruction.

I. Unit Title INTRODUCTORY CHEMISTRY

A. Segment Title The Language of Chemistry

B. Student Performance Objectives

1. Differentiate between an ion and a neutrally charged atom.

2. Interpret formulas in terms of elements or ions present and their relative amounts.

3. Write formulas for simple compounds.

4. Write balanced equations for reactions stated in symbolic or sentence form.

5. Recognize the importance of an international system for nomenclature.

C. Segment Resources (Title/Page numbers)

IAC-R&R, p. 61-66
MtM, p. 133-34
Programmed Unit in Chemistry: Balancing Chemical Equations, Prentice-Hall.
"Chemical Equations" Worksheet

pH METER - USER'S GUIDE

Procedure 1. Rotate the switch to STANDBY. Allow to warm up 30 min.

CAUTION When the instrument is not in use, keep on STANDBY.

2. Raise the electrode from the storage solution in the beaker.

CAUTION Always keep the electrodes in distilled water when not in use.

3. Rinse the electrodes thoroughly with distilled water. Blot with absorbent tissue.

4. Determine the temperature of the buffer solution with a thermometer. If the unit has a TEMPERATURE calibration, adjust it to correspond with the buffer temperature.

5. Calibrate the meter by immersing the electrodes in a buffer solution of known pH.
   a. Rotate the selector switch to pH.
   b. Turn the adjustment knob to CALIBRATION to read the pH of the known buffer solution.

CAUTION Do not allow the electrodes to touch the sides of the beaker.

6. Rotate the selector knob to STANDBY.
   a. Raise the electrodes carefully.
   b. Remove the buffer solution
   c. Rinse the electrodes thoroughly with distilled water.
   d. Blot the electrodes with absorbent, lint-free tissue.

7. Place the beaker of solution to be tested beneath the electrodes.

8. Lower the electrodes carefully into the solution.

9. Rotate the selector knob to pH. Read the pH of the

solution directly from the meter. Record the value.

10. When the determination is complete:
    a. Switch to STANDBY. Raise the electrodes.
    b. Rinse the electrodes with distilled water.
    c. Store the electrodes in distilled water.

This unit is a continuation of Unit IV with an emphasis upon related life functions. Although chemistry provides the vehicle for the presentation of life processes, it (chemistry) should be viewed in a complementary role rather than either a primary or supplementary position.

The Introduction for the Teacher's Guide of Molecules in Living Systems very aptly and succinctly states the position that ought to be maintained during this unit: "the complexity of the subject should not be a barrier to enjoying the study of biochemistry. . . ." In fact the entire "Introduction" should be required reading for all instructors inasmuch as it more than adequately presents the basic philosophy of particular reference to this complex subject area.

While the student is in the process of completing this unit he/she should be directed to finalize the selection of a choice of specialization for the second semester. The instructor will be required to do some counseling to assist the students to draw together their experiences to date. This counseling should emphasize the contribution of each unit to the choice to be made. Reference may be made to the "Course Introduction" and second semester "Overview". It must be noted that a decision not to continue for the second semester is a valid decision.

V / 1
Unit Segment

I. Unit Title MOLECULES OF LIFE

A. Segment Title Considering Life Processes

B. Student Performance Objectives

1. Identify the functions and basic structural characteristics of the biomolecules of each biochemical class and cite examples of each.

2. Define isomerism.

3. Distinguish between the functional groups of alcohols, aldehydes, and ketones.

4. Draw electron dot and line structures of simple organic molecules.

5. Recognize the structures of the carboxylic acid, amine, and peptide groups and show how the latter is formed from the two former groups.

6. Distinguish between amino acids by recognizing different functional groups.

7. Recognize carbohydrates in general by their complement of functional groups.

8. Describe types of carbohydrates (mono-, di-, and polysaccharides) and give an example of each by name (not structure), e.g., glucose-monosaccharide. (B-6)

9. Identify by name carbohydrates used as energy storage compounds or used as structural compounds.

10. Recognize examples of lipids (saturated and unsaturated) and identify their functional groups.

C. Segment Resources (Title/Page numbers)

IAC-R&R - Molecules in Living Systems (MLS), p. 12-39
MtM, p. 144-149, 684, 686, 687
"Molecules and Processes of Life" (A/T) PLAN: Biology, Westinghouse Learning Corporation

V / 2
Unit Segment

I. Unit Title MOLECULES OF LIFE

A. Segment Title Properties & Reactions of Biomolecules

B. Student Performance Objectives

1. Given the structure of a biomolecule, predict on the basis of functional groups present, its solubility in polar and non-polar solvents. (B-10)

2. Distinguish experimentally, monosaccharides, amino acids, proteins, and lipids, through physical and chemical tests. (B-13)

3. Define acids and bases according to Brønsted-Lowry theory.

4. Explain the acidic and basic properties of amino acids.

5. Identify the acidic and basic parts of a zwitterion.

6. Discuss Miller's experiment simulating primitive earth conditions.

7. Explain the hypothesis of coacervate formation. (7-B)

C. Segment Resources (Title/Page numbers)

IAC-MLS, (Investigations B-10, 13), p. 40-50
MtM, (Investigation 7-B), p. 134-42

I. Unit Title MOLECULES OF LIFE

A. Segment Title Enzymes: Where the Action Is

B. Student Performance Objectives

1. List and describe the properties of enzymes including a definition of the "active site".

2. Compare properties of enzymes and catalysts. (B-16)

3. Distinguish experimentally between catalysts and non-catalysts. (B-16)

4. Explain, in general, how enzymes are structured and the ways that the structures of enzymes can differ.

5. Carry out calculations that relate pH with H^+ concentration and with OH^- concentration. (Exercise B-22)

6. Explain why a change in pH will cause a change in enzyme activity.

7. Determine optimum pH for an enzyme reaction given the experimental data. (B-23)

8. Experimentally determine the reaction rate of a given enzyme and plot reaction rate vs. pH. (B-25)

9. Demonstrate the use of a pipette.

10. Carry out an experiment which shows the relationship between substrate analogs and reaction rate. (B-27)

11. Cite examples from daily living and discuss the consequences of protein denaturing. (B-20)

12. Determine the effect of temperature on reaction rate. (B-29)

13. Explain how temperature effects of enzymatic reactions would differ from non-enzymatic reactions.

C. Segment Resources (Title/Page numbers)

IAC-MLS (Investigations B-16, 20, 22, 23, 25, 27, 29), p. 51-81
MtM, p. 150-52

V / 4
Unit Segment

I. Unit Title MOLECULES OF LIFE

A. Segment Title Metabolism, the Community of Enzyme Reactions

B. Student Performance Objectives

1. Explain and distinguish between the terms "metabolism" and "digestion".

2. Determine if a given enzyme will hydrolyze gelatin. (B-31)

3. Identify and cite examples of metabolites and cofactors.

4. Explain the function of some vitamins in metabolism.

5. Outline an experimental procedure for demonstrating the activity of ATP.

6. Identify the events of the light reaction and the dark reaction of photosynthesis that result in the transformation of light energy into chemical energy.

7. Explain where most of the ATP from glucose metabolism is generated.

8. Explain why oxygen is so important in the metabolism of many organisms. (10-A)

9. Measure the amount of an acid by titration. (B-39)

C. Segment Resources (Title/Page numbers)

IAC-MLS (Investigations B-31, 39), p. 81-98
MtM (Investigation 10-A), p. 152-57, 186-191, 690-92, 700-02
"Respiration/Glucose Metabolism"* A/T
"Photosynthesis"* (A/T)
"Energy Transformation: U-3" (A/T) PLAN:Biology, Westinghouse Learning Corporation

*Supplementary for students needing additional practice/instruction.

I. Unit Title MOLECULES OF LIFE

A. Segment Title Putting It All Together

B. Student Performance Objectives

1. Demonstrate the correct use of the microscope by being able to locate given specimens in the microscope field; predict the observable changes of position of a specimen when viewed in the field and moved on the stage. (1-C)

2. Identify from a diagram, model, micrograph, or description the following nuclear structures of a cell: nucleus, nuclear envelope, nucleolus, chromatin (chromosome).

3. Determine the functions of the nuclear structures listed in objective #2.

4. Identify from a diagram, model, micrograph, or description the following organelles located in the cytoplasm of a cell: plasma membrane, mitochondrion, endoplasmic reticulum (smooth and rough), Golgi Apparatus, vacuole, ribosome.

5. Determine the functions of the cytoplasmic structures listed in objective #4.

6. Compare and contrast between the structures of plant cells and animal cells.

C. Segment Resources (Title/Page numbers)

MtM (Investigation 1-C), p. 236-46
"Cellular Basis of Life" (A/T) PLAN:Biology, Westinghouse Learning Corporation
An Atlas of Fine Structure: The Cell, Its Organelles and Inclusions, Don W. Fawcett, W. B. Saunders Company
The Living Cell: Readings from Scientific American

V / 6
Unit Segment

I. Unit Title MOLECULES OF LIFE

A. Segment Title The Organization of Cellular Activities

B. Student Performance Objectives

1. State two functions of the cellular membrane.

2. Identify and distinguish between the different processes of transport across a membrane.

3. Perform a separation of different sized molecules by dialysis. (B-42) (Alternative: 8-B)

4. Contrast the activities of the mitochondria and chloroplasts.

5. Separate particles of different densities by the density gradient method. (B-47)

6. Given a DNA sequence, be able to pair bases and "synthesize" an RNA sequence.

7. Explain the interaction between DNA, RNA, and the ribsomes to synthesize proteins.

8. Compare and contrast the mitotic and meiotic processes of cell division. (13-B)

C. Segment Resources (Title/Page numbers)

IAC-MLS (Investigations B-42, 47), p. 99-121
MtM (Investigation 8-B, 13-B), p. 198-224, 246-51, 262-64
"Cellular Events" (A/T) PLAN:Biology, Westinghouse Learning Corporation

Although titled "Second Semester - Overview" this could easily be considered an introduction for a second course. "Be prepared" becomes more than a Boy Scout Motto; at this point it becomes an admonition both to the instructor and to the student. For the instructor it should prompt him to assess realistically the educational setting in terms of personal involvement, course organization, and the materials and facility resources. Essentially this assessment should have preceded the initiation of the first semester of the course and continued as an ongoing process. For the student it is an embarking into a simulated application growing out of his first semester experience and decisions.

As the instructor assesses the educational setting, there are several factors to consider and constraints to be determined. It would be valuable to the success of the program to place more self-constraints on it initially than appear to be necessary.

Considerations:

1. It will be during the second semester more than at any other time that the ability to cope with individualization will occur. For those with experience in the individualized classroom, the constraints will be fewer. Those persons who have had little or no experience with an individualized approach would be advised to limit the available career simulations to one or two. Appropriately these

would be the ones for which the greatest student interest/employment potential was exhibited. Likewise the students should be made aware of the anticipated conditions of the second semester while completing the Core.

2. Integral to the first consideration is one which determines the potential and useability of the physical setting. Just as persons have different tolerance levels for accommodating to a variety of activites occurring simultaneously so also does the classroom/laboratory and complementary facilities. One must first achieve a sense of the totality of the events which will be taking place and proceed to organize the laboratory accordingly. With a little visionary creativity the flexibility of the classroom can usually be "stretched" to afford greater accommodation than its original planner ever had in mind. To help minimize some of the facility/laboratory apparatus constraints, those persons interviewed unanimously counseled that the lack of sophisticated equipment should not be considered a constraint. Sophisticated apparatus could be simulated as well as experiences, i.e., the use and understanding of the Spectronic 20 could well substitute for the use of any computerized automated colorimetric apparatus.

3. The experiences to be provided will be determined in part by the above consideration but as has been implied, like a broken record, must also reflect the local situation. The units included for

use in this section of the guide have not been given unit nor segment numbers. This is intentional. The numbering has been eliminated since these units are to be selected and tailored into an individually functional course. Titles have been retained to assist in this fashioning process, but all units within a given category may not be necessary. A "cut and paste" method of matching the Student Performance Objectives with the needs of the local situation should be the criteria determining their selection and inclusion. Likewise, in no sense are these to be considered comprehensive and applicable to every situation. They are simply those developed for use in the pilot program at Simi Valley High School and it is anticipated that they will be revised and supplemented as the needs arise.

Although inherently implied it is practically demanded that the simulations of this portion of the course focus on actual problems anticipated to be encountered in the potential sites of employment. These can best be determined as the result of direct contact with possible employers. As the result of personal interviews, it was determined that the type of experience (problem solving), i.e., analysis of water quality, rather than the sophistication of laboratory apparatus, was the more significant feature. It is intended that a "Cover Unit" will be used or developed to organize the second semester program with complementary segments (Performance Objectives) selected which apply to any of the simulations assigned.

Three samples have been provided.

In summary, it would appear to be obvious that no one consideration can be examined independently of any of the other considerations. Each affects and is affected by decisions resulting from any of the considerations. The value of this segment of the course can only be determined by evaluating how closely the "tailored product" correlates with the "on the job" experiences of the graduates. This program will of necessity require ongoing evaluation in terms of graduate follow-up and revisions made to coincide with both graduates' and employers' recommendations.

COVER UNIT 1

I. Unit Title LAB ASSISTANT (Medical)

A. Segment Title Laboratory Simulation

B. Student Performance Objectives

1. Distinguish between the functions of a primary and a reference laboratory.

2. List the job functions of positions within the simulated medical reference laboratory.

3. Function in an assigned position within the laboratory simulation and assist in other areas as requested and work load allows.

4. Maintain a record of assignments completed.

5. Complete study segments as assigned.

6. Demonstrate proficiency in the use and understanding of apparatus required in fulfillment of assigned job duties.

7. Exhibit a responsible attitude while functioning in assigned positions.

C. Segment Resources (Title/Page numbers)

Job Description (Laboratory Procedures Division of Upjohn Co.)
Specimen Preparation, Reagent Preparation, Laboratory Assistant, Laboratory Glassware Cleaner, Prescribed Study Segments

COVER UNIT 2

I. Unit Title LAB ASSISTANT (Non-Medical)

A. Segment Title Laboratory Simulation

B. Student Performance Objectives

1. Determine the characteristics of a variety of non-medical laboratories -- quality control, chemical, consumer products testing, food, etc.

2. Function as an assigned lab assistant in a situation simulating the type of laboratory chosen.

3. Maintain records of analyses undertaken with results properly recorded on appropriate report forms.

4. Complete study segments as assigned.

5. Demonstrate proficiency in the use and understanding of apparatus required in fulfillment of assigned job duties.

6. Exhibit a responsible attitude while functioning in assigned positions.

C. Segment Resources (Title/Page numbers)

Prescribed Study Segments

COVER UNIT 3

I. Unit Title PREPARATION FOR POSTSECONDARY EDUCATION

A. Segment Title Program Design

B. Student Performance Objectives

1. State postsecondary goals and list available educational resources for their fulfillment.

2. List the prerequisites and recommendations to be completed which will facilitate acceptance into the desired postsecondary program.

3. Utilizing available study segments with the assistance of the instructor, develop a course outline which will fulfill prerequisites.

4. Complete study segments and participate in any simulated situations which may be prescribed by the instructor.

C. Segment Resources (Title/Page numbers)

Prescribed Study Segments

I. Unit Title LAB ASSISTANT

A. Segment Title Periodicity: A Chemical Calendar

B. Student Performance Objectives

1. Describe changes in ionization energy as a periodic function.

2. Distinguish between metals and nonmetals on the basis of their physical properties.

3. Determine the relation between ionization energy and atomic number for a given chemical family and chemical period.

4. Illustrate the atomic number and ionization energy data relationship by means of a graph. (IAC-D & P:I-4)

5. Given an element, predict its relative chemical reactivity based on its position in the periodic table.

6. Given an element, use the relationships in the periodic table to predict its valence.

7. Using an element's valence, write formulas of compounds such as oxides and halides.

8. Perform a redox reaction experiment to determine relative chemical reactivity of the halogens. (IAC-D & P:I-9)

C. Segment Resources (Title/Page numbers)

IAC - Diversity and Periodicity (D & P), p. 13-37

CORE 1/2 / B
Unit Segment

I. Unit Title LAB ASSISTANT

A. Segment Title Bioinorganic Chemistry

B. Student Performance Objectives

1. Give examples or write equations to illustrate how inorganic materials can act as environmental pollutants.

2. Determine the effect on algal growth of the presence or absence of essential trace metals. (IAC-D & P:I-42)

3. Propose an experimental procedure to quantitatively determine and record the changes in the algal growth of investigation I-42.

4. Explain the function of metallic elements in biochemical enzymes.

5. Explain the function of hemoglobin and myoglobin in respiration.

6. Illustrate by equation the redox behavior of Fe in the cytochrome c system.

C. Segment Resources (Title/Page numbers)

IAC-D & P, p. 96-106

The Human Organism, McGraw Hill Co., p. 132, 322-27, 404-09

I. Unit Title LAB ASSISTANT: TESTING

A. Segment Title Structural Chemistry of Metals and Their Compounds

B. Student Performance Objectives

1. Describe and explain the malleability of metals in terms of their metallic bonding.

2. Identify and test physical properties of metals and non-metals. (IAC-D & P:I-12)

3. Recognize the properties of metals as determined by the arrangements of their atoms and electrons.

4. Construct three-dimensional models of metallic lattices using plastic balls and boxes. (IAC-D & P:I-14)

5. Explain malleability and ductility of metals; relate these properties to the ease of "layer glide" in the crystal system.

6. Construct three-dimensional models of ionic lattices using plastic balls and boxes. (IAC-D & P:I-16-18)

7. Compare the physical properties of metals and nonmetals to the physical properties of ionic compounds.

8. Given an ionic crystal, explain its physical properties in terms of its ionic lattice.

C. Segment Resources (Title/Page numbers)

IAC-D & P, p. 38-54

Industrial Analysis, Franklin Pub. Co., p. 333-414

CORE 2 / B
Unit Segment

I. Unit Title LAB ASSISTANT

A. Segment Title Inorganic Molecules

B. Student Performance Objectives

1. Identify covalent bonds as those that result from the sharing of electrons.

2. Predict shapes of molecules, including those with non-bonding pairs of electrons.

3. Write line formulas and electron dot structures for molecules. (IAC-D & P:I-22)

4. Relate the physical properties of molecules to their molecular geometry.

5. List common important inorganic molecules and indicate why they are important.

C. Segment Resources (Title/Page numbers)

IAC-D & P, p. 54-67

I. Unit Title LAB ASSISTANT

A. Segment Title Chemistry of the Transition Elements

B. Student Performance Objectives

1. Given a compound or ion, determine the oxidation state of the elements composing it.

2. Write equations to illustrate the oxidation and reduction of elements.

3. Given a coordination compound or complex, identify its two components.

4. Synthesize coordination compounds. (IAC-D & P:I-31)

5. Determine the effect of different metal ions on the sudsing ability of soap solutions. (IAC-D & P:I-34)

6. Determine the effectiveness of different chemicals as water softeners. (IAC-D & P:I-35)

7. Use solvent extraction to separate a mixture of compounds. (IAC-D & P:I-37)

8. Test qualitatively for the presence of absence of lead in a sample. (IAC-D & P:I-39)

C. Segment Resources (Title/Page numbers)

IAC-D & P, p. 76-96

Industrial Analysis, p. 281-329

I. Unit Title LAB ASSISTANT

A. Segment Title Organic Chemistry

B. Student Performance Objectives

1. Identify the bond type found in most organic compounds.

2. Distinguish between single, double, and triple bonds; relate these bonds to the number of electron pairs shared.

3. Discuss the formation of organic compounds from inorganic compounds; interpret appropriate equations in the discussion.

4. Explain the significance of the formation of fossil fuels from once-living materials.

5. Distinguish between an organic compound and an inorganic compound by means of their combustibility. (IAC-F & F:0-8)

6. Explain fractional distillation.

7. Given a two component mixture, separate it by means of fractional distillation. (IAC-F & F:0-10)

8. Given several compounds, identify by structure those most likely to undergo substitution and addition reactions.

9. Identify saturated molecules compared with unsaturated molecules as determined by their reaction rate with $KMnO_4$. (IAC-F & F:0-13)

10. Predict reactivity of compounds based upon their structure; and then verify the predictions by experiment. (IAC-F & F:0-13)

C. Segment Resources (Title/Page numbers)

IAC - Form and Function F & F, p. 12-36

I. Unit Title LAB ASSISTANT

A. Segment Title Alcohols, Esters, and Acids

B. Student Performance Objectives

1. Describe oxidation-reduction on the basis of a loss or gain of oxygen or hydrogen.

2. Explain the increase in boiling point of alcohols compared with hydrocarbons in terms of H-bonding.

3. Given the structure and properties of a variety of compounds and solvents, predict their solubility.

4. Experimentally determine the solubility of common materials in water and organic solvents. (IAC - F & F:0-20)

5. Identify an organic acid and an ester by their structure.

6. Experimentally prepare a specific ester. (IAC-F & F:0-28)

7. Experimentally determine the melting points of a variety of compounds. (IAC-F & F:0-30)

8. Synthesize an aspirin sample comparing its properties with those of commercial aspirin. (IAC-F & F:0-30)

C. Segment Resources (Title/Page numbers)

IAC-F & F, p. 36-71

CORE 3 / A
Unit Segment

I. Unit Title PRE-NURSING

A. Segment Title Tissues

B. Student Performance Objectives

1. Visually identify representative examples of epithelial, connective, and muscle tissues when presented in 35 mm slide, microscope slide, or diagram form.

2. Identify these tissues from definitions of structure, location and/or function.

3. Be able to discuss the relationship between the structure and the function of the tissues being studied.

4. Understand and correctly use vocabulary relative to the study of tissues.

5. Explain cartilaginous and membranous bone development.

6. Explain tissue repair and major problems associated with tissue/organ transplants.

7. Distinguish between mucous and serous membranes by definition and cite specific examples of each.

C. Segment Resources (Title/Page numbers)

The Human Organism, p. 68-94

Anatomy and Physiology, p. 46-84

CORE 3 / B
Unit Segment

I. Unit Title PRE-NURSING

A. Segment Title Skeleton

B. Student Performance Objectives

1. Identify visually the bones of the human skeleton.

2. Identify visually and verbally five different types of articulations and give examples of each.

3. Understand and use vocabulary relative to the study of the skeletal system.

4. Discuss at least one basic difference between infant and adult skeletons with examples. (Size not an acceptable difference.)

5. Discuss at least three medical problems associated with the skeletal system.

6. Discuss with examples three functions of the human skeleton.

C. Segment Resources (Title/Page numbers)

The Human Organism, p. 98-127

CORE 3 / C
Unit Segment

I. Unit Title PRE-NURSING

A. Segment Title Respiratory System

B. Student Performance Objectives

1. Locate and identify the structures of the respiratory system listed within the vocabulary list.

   a. The structures should be located on the mannequin and/or on a diagram.

   b. The structures should be identified by function and/or location.

2. Detail the "fate" of a given breath of air by following an O_2 molecule from the nares to the cell tissue and back again.

3. Discuss the function of the chemoreceptors and presso-receptors.

4. Compare external respiration with internal respiration indicating similarities and differences.

5. Discuss the role of the gas law of partial pressures or tension of gases as they relate specifically to respiration and the transport of gases; be able to compute partial pressures.

6. Discuss at least three specialized respiratory movements.

7. Discuss the mechanism of breathing -- how do you breathe?

8. Summarize the neural control of breathing; include the Hering-Brewer reflex.

C. Segment Resources (Title/Page numbers)

The Human Organism, pp. 420-45

Anatomy and Physiology, p. 369-98

CORE 3 / D
Unit Segment

I. Unit Title PRE-NURSING

A. Segment Title Digestive System

B. Student Performance Objectives

1. Name and describe by structure, location and function the parts of the alimentary canal.

2. Name and describe by structure, location and function those parts of the digestive system which are not a part of the alimentary canal accessory organs.

3. List the digestive enzymes, their source, area of activity, substrate, and resultant substance.

4. Discuss the stages of digestion.

5. Discuss the role of peristalsis in digestion.

6. Know at least six vitamins, sources and effects on physiology.

7. Discuss the various changes which occur to food during the process of digestion.

8. Discuss absorption, the type and areas wherein each occurs.

C. Segment Resources (Title/Page numbers)

Anatomy & Physiology, p. 399-465

CORE 3 / E
Unit Segment

I. Unit Title PRE-NURSING

A. Segment Title Circulatory System

B. Student Performance Objectives

1. Type blood; A, B, AB, O, and D (Rh).

2. Make a blood count and compare it to "normal counts".

3. Make a differential white blood cell count.

4. List and discuss 10 functions of the blood.

5. Discuss the disorders of the blood; anemia, sickle cell anemia, hemophilia and leukemia.

6. Discuss the clotting mechanism and factors affecting it.

7. Diagramtically follow a unit of blood through the heart beginning at the vena cavae and ending at the aorta. List and identify the structures through and/or by which this blood passes.

8. Discuss the cardiac cycle and the activating mechanism.

9. Take blood pressure.

10. Compare arteries, veins, and capillaries regarding their anatomy and function.

C. Segment Resources (Title/Page numbers)

The Human Organism, p. 330-415

CORE 3 / F
Unit Segment

I. Unit Title PRE-NURSING

A. Segment Title The Nervous System

B. Student Performance Objectives

1. Describe the structure and function of a spinal motor neuron, spinal sensory neuron and association neuron.

2. Discuss the origin and characteristics of nervous tissue.

3. Discuss the conditions accompanying a nerve impulse.

4. Distinguish between convergence and divergence of nerve impulses.

5. Illustrate and discuss a simple reflex arc.

6. Discuss the chemical transmission of nerve impulses across synapses or from motor end plates to muscles.

7. Describe the structure and function of the central nervous system.

8. Distinguish between cranial and spinal nerves.

C. Segment Resources (Title/Page numbers)

The Human Organism, p. 188-239

ACCESSION NUMBER: VT103499

PUBLICATION DATE: 76

TITLE: CAREER PLACEMENT BY WORK SAMPLING FOR THE HANDICAPPED. A RESEARCH REPORT.

PERSONAL AUTHOR: HONSBERGER, TREVA; SHELLEY, MARK

DESCRIPTOR: *HIGH SCHOOL STUDENTS; *HANDICAPPED STUDENTS; SECONDARY EDUCATION; PHYSICALLY HANDICAPPED; MENTALLY HANDICAPPED; LEARNING DISABILITIES; CAREER PLANNING; *VOCATIONAL COUNSELING; *VOCATIONAL APTITUDE; *VOCATIONAL INTERESTS

IDENTIFIER: *WORK SAMPLING

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 131P.; PAGES 41 THROUGH 46 AND PAGE 128 WERE NOT REPRODUCIBLE AND WERE REMOVED. THEY ARE NOT INCLUDED IN THE PAGINATION. APPENDED MATERIALS MAY NOT REPRODUCE WELL. BEST COPY AVAILABLE.

ABSTRACT: THE GOAL OF THE PROJECT WAS THE PLACEMENT OF DIVERSELY HANDICAPPED STUDENTS AT THE SECONDARY LEVEL IN SUITABLE VOCATIONAL PROGRAMS WHICH WOULD LEAD TO EVENTUAL EMPLOYMENT. WORK SAMPLING, A VOCATIONAL EVALUATION PROCEDURE UTILIZING "HANDS ON" EXPERIENCES, INTEREST, AND BASIC ACADEMIC SKILLS TESTING TO ASSESS THE CLIENT'S VOCATIONAL POTENTIAL, WAS THE TECHNIQUE EMPLOYED TO DISCOVER APTITUDES OF THESE SPECIAL STUDENTS. TWENTY HOURS OF WORK SAMPLING WERE ADMINISTERED TO 30 STUDENTS, FOLLOWED BY PARENT, STUDENT, AND TEACHER CONFERENCES. AN INSERVICE COMPONENT CONSISTED OF AN INITIAL ORIENTATION TO PARENTS, VISITATION OF THE FACILITIES AT VENTURA AND CAMARILLO, AND A STAFFING SESSION WITH TEACHERS AND EVALUATION STAFF. IT WAS FELT THAT WORK SAMPLING WAS EFFECTIVE IN MOST CASES IN DELINEATING STUDENTS' APTITUDES AND, TO A SOMEWHAT LESSER EXTENT, THEIR INTERESTS. DUE TO TIME LIMITATION, THE ANTICIPATED FOLLOWUP OF PLACEMENT IN CLASSES OR TRAINING PROGRAMS AND/OR ADDITIONAL COUNSELING WAS NOT COMPLETED. RECOMMENDATIONS ARE PRESENTED FOR THE CONTINUATION OF AN EXPANDED PROGRAM WHICH WOULD INCLUDE ADDITIONAL COUNSELING SERVICES, CONFIDENCE-BUILDING PROGRAMS, AND FOLLOWUP PROCEDURES. APPENDIXES TO THE REPORT INCLUDE AN EXCERPT FROM THE DICTIONARY OF OCCUPATIONAL TITLES, DESCRIPTIONS OF CAREER EVALUATION PROGRAMS AT THE TWO WORK SAMPLING SITES, A CAREER PLANNING INVENTORY, AND PROJECT DEVELOPED FORMS. (AUTHOR/RG)

INSTITUTION NAME: SIMI VALLEY UNIFIED SCHOOL DISTRICT, SIMI, CALIF.

SPONSORING AGENCY NAME: BUREAU OF OCCUPATIONAL AND ADULT EDUCATION (DHEW/OE), WASHINGTON, D.C.

VT103 499

CAREER PLACEMENT

BY

WORK SAMPLING

FOR

THE HANDICAPPED

1976

A RESEARCH REPORT

Prepared by

Treva Honsberger
Mark Shelley

SIMI VALLEY UNIFIED SCHOOL DISTRICT

Dr. Chester A. Howe
Director of Instructional Operations

Dr. John W. Duncan
Superintendent

VT 103 469

BEST COPY AVAILABLE

CAREER PLACEMENT

BY

WORK SAMPLING

FOR

THE HANDICAPPED

1976

A RESEARCH REPORT
of
Vocational Education Project
#56-72603-B-6-000-H(A)
Under the
Vocational Education Amendment of 1968
P.L. 90-576 Part B-Handicapped

Project Director:
Dr. Chester A. Howe
Director of Instructional Operations
Simi Valley Unified School District

Director of Special Education:
Stan Norton
Simi Valley Unified School District

Project Vocational Technicians:
Treva Honsberger
Mark Shelley

CE009634

Acknowledgements

In appreciation for their assistance and encouragement in the implementation of the project:

Jerry Kinzel
Occupational Counselor
Regional Occupational Program
Ventura County Superintendent of Schools

Carol Dinneen, Tom Herod, Bob Landers and Pauline Jiminez
Career Evaluation Staff
Regional Occupational Program
Ventura County Superintendent of Schools

Terry Dinneen, Rick Cardoni, Ruth Hernandez and Mike Boggs
Work Evaluation Staff
Ventura County Health Services Agency

Ron Burns
Occupational Counselor
Regional Occupational Program
Ventura County Superintendent of Schools

John Van Zant and Maribeth Potter
Dissemination Staff
California Manpower Management Information System

A special thanks to our bus driver, Ellie Beck, for her patience and encouragement with the project staff and students.

Abstract

Funded under Part B of the Vocational Education Amendment (VEA) of 1968, "Career Placement by Work Sampling for the Handicapped" commenced in February, 1976 by the Simi Valley Unified School District under the Department of Instructional Operations. The project's goal was the placement of diversely handicapped students at the secondary level in suitable vocational programs which would lead to eventual employment. The technique employed to discover the aptitudes of these special students was work sampling, which is a vocational evaluation procedure utilizing "hands on" experiences, interest and basic academic skills testing to assess the client's vocational potential. Facilities at the Regional Occupational Program (ROP) of the Ventura County Superintendent of Schools were utilized, while the County of Ventura Health Services Agency Work Evaluation Unit served the more severely handicapped students.

Two vocational technicians were responsible for the implementation of the project. Twenty hours of work sampling was administered, followed by parent, student and teacher conferences. An in-service component consisted of an initial orientation to parents, visitation of the facilities and a staffing session with teachers and evaluation staff.

It was felt that the work sampling was effective in most cases in delineating students' aptitudes and, to a somewhat

lesser extent, their interests. Follow-up, consisting of placement in classes, training programs and/or additional counseling, was difficult due to the time limitation. The project indicated a need for further work and research in this area, and was for the most part supported by students, parents and teachers.

Preface

In eras past, handicapped individuals were regarded as "demon-possessed" or incurably mentally ill. Fortunately, the human collective consciousness has emerged from these barbaric and medieval diagnoses, and now can see these individuals as capable of productivity and self-fulfillment. A major responsibility of education is to tap and develop these potentials, to help prepare these special students for a meaningful life after high school graduation. To this end, was this project conceived, proposed and implemented.

Although the obvious end of a project of this nature is eventual placement in the world of work, the major benefit of such a program may indeed be a less tangible, measurable one. The success a student experiences in a hands-on, job related task, the encouragement he receives from staff and teachers, the insight that he can do something well, may prove to be a more immediate, long lasting result. A positive glimpse of himself in the midst of what seem to be overwhelming handicaps may encourage the student to further explore, develop and train in his interests and aptitudes. If this were the only result of such a project, one would have to gauge it as an overwhelming success.

As a pilot project, the limitations of this project are realized and delineated. Yet it is apparent that much value lies with the idea of increased in-depth vocational evaluation. It is our hope that the lessons learned here will serve as a

motivation and a basis for further research and programming in the area of career awareness for handicapped students.

Table of Contents

ACKNOWLEDGEMENTS. i

ABSTRACT. ii

PREFACE iv

TABLE OF CONTENTS vi

LIST OF TABLES viii

BACKGROUND AND THEORY 1
Need and Previously Existing Conditions. 1
Work Sampling Theory 3
Work Sampling Facilities 6

GOALS AND OBJECTIVES. 7

Program Goals. 7
Measurable Performance Objectives. 8

RESEARCH TECHNIQUES 10

Design. 10
Sampling 11
Instrumentation 13

PROJECT PROCEDURES 15

Teacher Orientation 16
Advisory Committee 17
Parent Orientation 18
Teacher Visitation of Facilities 19
Work Sampling of Students 20
Staffing and Manpower Presentation 22
Student De-briefing 23
Parent Conferences 24
Follow-up 25
Evaluation 26

RESULTS AND CONCLUSIONS 42

Outcome of Measurable Performance Objectives 43
Teacher Feedback 49
Parent Feedback 52
Student Feedback 54

LIMITATIONS 57

Generalizability of Results 57
Time and Distance 58
Uniqueness of Project 60

RECOMMENDATIONS 62

Involvement of Related School Personnel 62
Immediate Feedback from Evaluation 63
Additional Areas for Guidance 64
Evaluation of Vocational Education Program 65
Expansion and Continuation of Program 66

APPENDICES 67

Appendix A: Explanation of Relationships within Data, People and Things Hierarchies and Worker Trait Relationships 67
Appendix B: Explanation of Ventura ROP Career Evaluation Program 76
Appendix C: Brochure and Brief Description of HSA Work Evaluation Program 87
Appendix D: The Career Planning Inventory--Test and Explanation 90
Appendix E: Project-Developed Feedback Forms . .106
Appendix F: Sample Copy of ROP Evaluation Report.111
Appendix G: Sample Copy of HSA Evaluation Report.117
Appendix H: Regional Occupational Program Brochure 123
Appendix I: "Job Survivals Skills" Program Brochure 126

List of Tables

Table 1: Composition of Experimental and Control Groups 12

Table 2: CPI Pre-test/post-test Summary of Results 44

Table 3: Student Attitudinal Summary -- Post-test CPI 46

Table 4: Teacher Feedback -- Summary of Results . .49

Table 5: Parent Feedback -- Summary of Results . .52

Table 6: Student Feedback -- Summary of Results . .54

Background and Theory

Need and Previously Existing Conditions

Career planning, vocational education and related areas have a high national, state and local priority for students in grades K thru 12. Preparing students to function effectively after graduation is a primary goal of secondary education.

A survey conducted by the Simi Valley Unified School District during the 1974-75 school year requested teachers and parents to prioritize the educational goals for students in the district. Results of this survey indicated the highest priority for vocational guidance and career planning.

Students, too, seem aware of this need. According to the Summary of Results of the Ventura County Superintendent of Schools Career Planning Inventory given in the Fall of 1975, 70% of the 30,000 students who participated indicated a need for additional or considerable help in career planning.

Students from special education classes are often doubly handicapped when it comes to job preparation. They not only are unsure of their physical limitations, but most also have reading and/or math liabilities which need to be considered. High school students (grades 10-12) who are moderately to severely physically or educationally handicapped comprise about 4% of the total senior high school population in Simi Valley. In addition, the school district serves the entire deaf and hard of hearing and orthopedically handicapped student population in the southeastern portion of Ventura County; also the deaf students from the Las Virgenes Unified School District in Los

Angeles County.

One of the special education teachers has acted in the capacity of Work Study Coordinator for the handicapped part-time since 1972, mainly in conjunction with the Department of Rehabilitation (DR) agreement with the Ventura County Superintendent of Schools. An on-campus work incentive pay program and supervised work experience comprised the greater part of the program. Besides the obvious time and personnel limitations, attention was concentrated on those qualified as clients with D R. Funds for this position have been dwindling each year, and next year these funds will no longer be available. Other means to serve a greater variety of handicapped students are needed.

Prior to the initiation of this project there was no specific plan for evaluating the vocational potential of these students in order to effectively place them in regular vocational education programs.

BACKGROUND AND THEORY

Work Sampling Theory

Several forms of work sampling have been in use for rehabilitation purposes for some time, but it wasn't until the late sixties that a systematic discipline of vocational evaluation with an explicit theoretical framework gained widespread acceptance among professionals. Pioneer work in the field was done by Vocational Guidance and Rehabilitation Services in Cleveland, Stout State University in Menemonie, Wisconsin, and the Philadelphia Jewish Employment and Vocational Service. Since that time, Singer-Graflex has produced a complete line of audio-visual evaluation units, and Valpar Corporation of Arizona has continued to develop and norm a component work sampling system.

A work sample is defined as a mock-up or a close simulation of an actual industrial operation not different in its essentials from the kind of work a potential worker would be required to perform on an ordinary job. Work sample evaluation is a systematic procedure for assessing work potentials and behaviors. Pruitt (1970)[1] outlines nine basic postulates of work sample theory:

1. Persons who do poorly on psychological tests can be effectively evaluated by the method of work sample evaluation. This includes populations for whom standardized tests are not normed and those persons below the average level in verbal, mathematical and academic skill or training, which most pencil and paper tests assume.

[1]Pruitt, W. A., Basic assumptions underlying work sample theory, Journal of Rehabilitation, 1970, 36, 12-15.

2. Work samples differ from psychological tests in the degree of relatedness to the criterion. The criterion is work behavior and job performance. Hence, the client or student sees himself as performing a work task rather than taking a test, increasing his interest and lowering his anxiety.

3. Work samples are as efficient and as inexpensive as other evaluative methods including psychological testing.

4. Work samples illustrate the client's ability to function in a field of work, such as bench assembly, clerical work, etc. This broadens the scope of possible job selection and helps narrow choices to a field of work most suited for the client or student.

5. Work samples can be graded with respect to their problem solving complexity and occupational area. This graded aspect helps to predict occupational level as well as occupational area.

6. Work samples not only measure qualitative performance, but also allow for evaluation of such factors as motivation, vocational self-concepts, interpersonal relationships, initiative, ability to accept criticism, attention span, physical stamina and emotional maturity. Work samples also provide measures of manifest (performance) interests and aptitudes as opposed to measured (pencil-and-paper tested) interests and aptitudes.

7. Work sample evaluation provides the necessary information for vocational choice decision making.

8. Work sample evaluation reports are more meaningful and have more immediate application to both client and related personnel (counselors, teachers and placement specialists) than psychological reports.

9. Work sample evaluations provide information of broader scope than do psychological tests.

Another important facet of work sampling is that it is directly related and keyed to worker functions, traits and working conditions. Most work sample systems use the Department of Labor's Dictionary of Occupational Titles (DOT) "Data-People-Things" classification, coupled with the DOT's components of training time, aptitudes, interests, temperaments, physical demands and working conditions. (See Appendix A) This provides a direct link from the work sample evaluation to the actual job market.

Thus, work sampling can be seen, at least in theory, as applicable to a handicapped student population as a potentially effective tool for the assessment of aptitudes and interests, and to provide both student and staff with information needed for vocational decision making.

Work Sampling Facilities

In Ventura County, two work sampling evaluation centers are in existence--the Career Evaluation Laboratory at the Regional Occupational Program (ROP) of the Ventura County Superintendent of Schools at the demilitarized Oxnard Air Force Base in Camarillo and the Work Evaluation Unit at the Ventura County Hospital BARD unit operated by the County of Ventura Health Services Agency (HSA).

The ROP facility, the newer of the two, is outfitted with Valpar and Singer units, supplemented with samples from the University of Wisconsin/Stout Materials Development Center. It is funded primarily by the Comprehensive Employment Training Act (CETA) of the State of California, and as such, evaluates primarily CETA clients. Due to its location and association with the school system, this unit was the primary evaluation center. (A description of the ROP facility's services are included in Appendix B).

HSA's facility also included the Valpar and Singer units and is supplemented by Jewish Employment and Vocational Services (JEVS) battery. Their clientele consists mainly of DR clients and County Hospital referrals. This facility was utilized for the more severely handicapped and wheelchair students, as it is both barrier-free and adjacent to the hospital, should any student require immediate medical assistance. (See Appendix C).

The ROP and HSA work under a non-financial cooperative agreement.

GOALS AND OBJECTIVES

19

Goals and Objectives

Program Goals

The project-determined goals were as follows:

1. To provide all moderate to severe physically and educationally handicapped students in grades 10 thru 12 with comprehensive career evaluation to assess their vocational potential; this to lead to placement into programs designed to maximize their acquisition of marketable skills and their eventual ability to be self-supporting.

2. To provide teachers, counselors and parents of these students with appropriate orientation and assistance as to their role in implementing a realistic vocational education program.

Measurable Performance Objectives

The following measurable performance objectives were proposed to assess the attainment of the goals of the program.

1. Teacher In-service Training

Participating teachers of students in grades 10-12 with exceptional needs, high school counselors and selected vocational education teachers will receive 12 hours of in-service training on the goals and objectives of the project and their specific roles in its implementation.

2. Parent Participation

A minimum of 75 per cent of the parents of the participating students will participate in a three-hour orientation program to explain the goals and objectives of the project and their role in its implementation.

3. Student Evaluation

Thirty students will be selected and evaluated by the ROP or HSA work evaluation program and a written report of the results will be made available to appropriate school personnel and become a part of the student's cumulative file. Participating students will be administered on a pre-test/post-test basis the Career Planning Inventory (CPI) in order to determine attitudinal changes brought about as a result of their participation in the project.

4. Student Placement

Based on the results of the work sampling evaluation, each student will be placed, as appropriate, in regular on-going dis-

trict vocational education classes, work experience program, and/or advanced training programs. Each placement will be made following a review of the student's assessment data and in consultation with the student's parents, teacher, Director of Special Education, appropriate high school counselor, and/or work experience coordinator, appropriate vocational education teachers and the project vocational technicians.

RESEARCH TECHNIQUES

23

Research Techniques

Design

The original project proposal called for a one group, pre-test/post-test experimental design. However, to assess the effects of work sampling evaluation on the population, the Director of Research and the external evaluator modified the design to a two-group pre-test/post-test design, utilizing an experimental and control group.

Sampling

The target population were students in special education classes at the high school level, which included the following handicaps:

Learn Disability (LD)
Educable Mentally Retarded (EMR)
Trainable Mentally Retarded (TMR)
Deaf and Hard of Hearing (DHH)
Orthopedically Handicapped (OH)
Visually Handicapped (VH)
Aphasic

Initially, the project called for the selection of 60 students, their prioritization based on need and ability to profit from the evaluation, and a narrowing of the sample to 30 target students. However, with the modification in design, randomization of the initial selection was preferred.

Seventy-three referrals were collected and first arranged by handicap, then stratified by grade level. Through randomization procedures, 30 students were assigned to the experimental group and 30 functioned as the control. The result was a stratified matching random sample (Table 1, page 12).

Unfortunately, time constraints did not allow for exploration of the students' willingness to participate. As a consequence, several substitutions had to be made in both the experimental and the control groups. This was done with consideration, using the criteria chosen by the external evaluator (handicaps and grade). The groups were kept carefully balanced. Sex was not a controlled variable.

Composition of Experimental and Control Groups

Grade Level	OH		DHH		APH		LD		EMR		TMR	
	E	C	E	C	E	C	E	C	E	C		
10	2	2	2	2	1	1	8	8	5	4		
			E	C	E	C	E	C	E	C	E	C
11			2	2	1	1	5	5	2	3	1	1
											non-graded	
					E	C						
12					1	1						

E = Experimental Group C = Control Group

Table 1

Instrumentation

The Career Planning Inventory (CPI)

The CPI is administered annually to all students in Ventura County in grades 9-12. The pre-test was initially administered in November 1975, although several of the sample group were given the Inventory in February due to their absence for the initial testing. A copy of the CPI and a detailed explanation of its conception, purpose and use is published by the Ventura County ROP, and is included in Appendix D.

The CPI was re-administered in May 1976 as the post-test. Student profiles were obtained and comparisons made.

A major limitation of the CPI, when used in a pre-test/post-test design, is the ambiguity of response changes and difficulty in the interpretation of the related causes of those changes. For example: Student A may on the pre-test indicate that he is sure of his interests, and on the post-test indicate that he is uncertain of his interests. Is this uncertainty "bad" (i.e., did the work sampling confuse him?), or is it "good" (is he more aware of different vocational possibilities)? Conclusions, then, are extremely difficult to arrive at.

More than this, the CPI, being a fairly sophisticated instrument, was extremely difficult for most of the sample population to read and/or understand. It was necessary to read the inventory to many of the students. Therefore, the validity of the responses as truly representative of these students' attitudes, came into serious question. Problems of memory retention,

vocabulary and attention span also presented difficulties in its administration.

The CPI, although possibly giving a vague indication of attitudinal change, proved ineffective with this population.

Parent, Teacher and Student Feedback Forms

In order to evaluate the project's effect on parents, teachers and students, questionnaires were developed in order to give these groups an opportunity to respond to the activities and goals of the project (see Appendix E). The teacher and student Feedback Forms were designed around the activities in which each participated. The parent Feedback Form was constructed around what the parents perceived as the effects of the project. This resulted in a three-dimensional evaluation of the program.

Project Procedures

This section is a description of the various activities engaged in throughout the project, arranged in chronological order. Forms, letters, etc., utilized in the project are printed on yellow paper at the end of this section and are referred to by page number.

Teacher Orientation

The initial orientation to the project, held on February 10, 1976, was attended by all special education teachers involved with students at the secondary level, the two vocational technicians, Mr. Stan Norton (Director of Special Education), Dr. Shayle Uroff (Director of Research), Dr. Chet Howe (Director of Instructional Operations), Jerry Kinzel (Occupational Counselor, ROP unit), and Terry Dinneen (Work Evaluation Supervisor, HSA unit). Mr. Norton explained the need and relationship of the project to special education, and Dr. Howe distributed a project abstract (page 27) and briefed the teachers on the goals and objectives of the program, and Dr. Uroff described the design and some of the mechanics of the project. Terry Dinneen presented slides of his facilities and answered questions raised about the work sampling procedure. Jerry Kinzel then passed out referral forms (page 28) and explained the referral system. Teachers were asked to fill in all information for any student they felt might benefit from such a program. These forms were later collected by the vocational technicians. It was also announced that there would be one vocational technician stationed at each of the two high schools available to aid and consult with teachers during this process.

Advisory Committee

After the referrals had been collected, an advisory committee meeting was called. This consisted of Dr. Howe, Dr. Uroff, Dr. Lee Hendricks (external evaluator for the project), Rick Cardoni (representing HSA), Jerry Kinzel (ROP), and Treva Honsberger and Mark Shelley (vocational technicians).

At this meeting, the basic outline and mechanics for the project were decided upon (see agenda and suggestions, page 28-30). Responsibilities for various parts of the in-service components were assigned and final selection of students was made. Results of this meeting are recorded in the informal minutes (pages 31-34).

The vocational technicians were utilized to facilitate all phases of the program. The implementation of the work sampling, in-service training, parent orientation, communications, physical arrangements, conferences and compilation of the final report became the responsibilities of the technicians.

Parent Orientation

Parents were initially notified of their son's/daughter's selection for participation in the project by telephone. A letter confirming their selection was mailed to them carrying the signature of the Director of Special Education (see page 35). It explained the program briefly and invited the parents to attend the orientation meeting on March 2, 1976.

That evening turned out to be cold and very rainy. Even so, sixty per cent of the parents attended (an agenda is included on page 36). The program was explained, the staff introduced and the goals stressed. A slide presentation was presented by Jerry Kinzel and Terry Dinneen, and several work samples were demonstrated. A timeline (page 37) was given to each parent which outlined the work sampling schedule and dates of conferences, evaluation and final reports.

Information release forms (see page 38) were passed out to the parents and their purpose explained. All parents attending completed the form. (It should be noted here that none of the parents of participating students refused to grant authorization for their child's participation in the project.)

A question-answer period followed. The main concern of the parents seemed to be follow-up and placement. It was made clear to them that time limitations might prevent on-the-job placement for every student, but that this project would serve as a starting point. Reaction to the orientation was almost totally positive, and with the exception of only a few isolated cases, parents were supportive of the project throughout.

Teacher Visitation of Facilities

Prior to the actual evaluation of students, the special education teachers and selected school counselors toured the ROP and HSA work evaluation units. The philosophy and history of each center was explained by its own staff, and teachers were able to do actual work samples in order to become familiar with the testing environment. A tour of all the ROP and County school facilities was included, taking in the vocational training areas, county offices, and the center for severely handicapped children.

Release time was provided for participating staff. Approximately 90% of the special education teachers participated. Car pool transportation was arranged. Other than comments about the distance to the facilities, teacher reaction was overwhelmingly positive.

Work Sampling of Students

Referrals of students in the experimental group were delivered to Jerry Kinzel at the ROP. He and the HSA determined that eleven of the thirty students were to be evaluated at the HSA due to the nature of their handicaps, and the remaining 19 would be tested at the ROP.

As originally agreed, the HSA provided transportation for wheelchair confined students. All other transportation was provided by the District, via school station wagon driven by the vocational technicians, or carry-all or bus driven by District transportation personnel. Some of the transportation arrangements proved to be very limiting regarding the actual time students spent per day in testing.

Each group of students was evaluated for five days, from three to four hours per day depending upon distance to facility and transportation arrangements. In all cases, the evaluating facility was able to gather enough information for a complete evaluation of each student. Students needing additional testing due to absence were transported for make-up sessions near the end of the project. The fact that there were two technicians working on the project made this possible.

The project technicians were also used by the ROP and HSA to assist the evaluators in administering and scoring work samples. This gave them, in addition to spending time enroute to facilities and at lunch, valuable information about each student and his/her potential which they shared with both parents and teachers.

The attendance office, counselors, work experience coordinators and all other teachers of students were notified of each student's absence while participating in the sampling (see page 39-40). Teachers were requested to allow for make-up work. No negative feedback in this area was received from either teachers or students.

Staffing and Manpower Presentation

On April 28, 1976, members of the ROP and HSA staff and teachers of participating students met for a "staffing" session. "Staffing" is the term used by these agencies to denote a detailed briefing of a teacher or counselor about an individual student. Each teacher was given the opportunity to ask questions regarding each of his/her students and discuss this in relation to classroom performance and behavior. The Director of Special Education and vocational technicians also participated in the staffing, which consumed the entire morning and early afternoon. Release time was made available, and 70% of the special education teachers took part.

In the afternoon, John Van Zant and Maribeth Potter, of the Dissemination Staff for a special project developing the California Manpower Management Information System (CMMIS) presented a basic outlook of the job market for high school graduates and explained the CMMIS. The system combines several federal and state resources and agencies to provide information on all jobs listed in the DOT in a simple yet comprehensive form. This information includes projected employment in the field, general education and specific training required for the job, data on physical demands and working conditions, along with a schedule of institutions in Ventura County which offer a particular kind of training for that job.

Teacher reaction to this presentation was enthusiastic, yet a need for more training in the use of these aids was expressed.

Student de-briefing

Approximately a month after testing was completed, final work evaluation reports were received from the evaluation units (see Appendices F and G for sample reports from each facility). Following the staffing of teachers, the vocational technician and the student, along with a combination of teacher, parent and/or counselor, reviewed the report and discussed educational and personal limitations with that student and possible areas of vocational exploration and training. The tone of the interview was to be positive and encouraging, yet honest and consistent with the evaluation.

These de-briefings were of much value with LD, DHH and VH students. However, with the OH and EMR students, it remains questionable if the intent of these interviews was perceived. It was also found that in some instances with the parents and/or teachers involved in the conferences, the discussion revolved around personal and educational problems not directly related to the evaluation procedure and vocational area (these problems are seen as important, but possibly over-emphasized or misplaced during the de-briefing session). The most productive interviews occurred when the technician met separately with the student and then the parent. Although this method was much more time consuming, interviews tended to be more honest and candid.

Parent Conferences

In most cases, parent conferences were held during or immediately following school hours. Twenty-one of the thirty students' parents attended personal conferences with the technicians. A copy of the evaluation report was given to the parents to read and keep, while the technician explained any questions that came up. Areas of discussion were primarily as follows:

- Present educational status
- Employment potential of the student
- Nature and remediation of physical and/or educational limitation
- Work, personal and social behavior
- Immediate job/training possibilities
- Vocational classes for next school year
- Summer Job Survival Skills clinic (offered by Youth Employment Services)

Those parents who could not attend personal conferences were contacted by phone and sent a copy of the evaluation report. A cover letter inviting them to future conferences included phone numbers where the technicians could be reached.

Some of the conferences revealed personal and family problems of students and/or parents. Counseling was recommended in several instances. Most parents were quite pleased that their son/daughter had been selected for and participated in the evaluation and were anxious to utilize the results.

Follow-up

Due to time limitations, only a minimal amount of follow-up was accomplished. This was to include placement in on-the-job training (OJT), scheduling of vocational education classes for the next year (to be done by counselors and teachers) and placement in actual job situation. The following is a summary of completed follow-up as a direct result of the project:

Activity	Number of Students Involved
Enrollment in ROP (see Appendix H) and/or vocational education classes	10
Job Survival Skills program (see page 41 and Appendix I)	4
DR referrals	2
Speech therapy evaluation	1
Psychological re-evaluation	1
Hearing test (non-DHH student)	1
Special assistance in Completion of Employment Application	1
Volunteer Job Exploration	2

Many of the students continued in the District's on-going incentive-pay work experience program. Graduating seniors were given special attention regarding employment possibilities and opportunities.

Evaluation

Assessment of the program by students, parents and teachers was accomplished through the use of the feedback forms. Students and teachers were administered these questionnaires during school hours. Parents were mailed the forms, and a self-addressed envelope was included. Information from these forms is summarized in the Results and Conclusions section.

SIMI VALLEY UNIFIED SCHOOL DISTRICT
PROJECT ABSTRACT

Project Title: Career Placement by Work Sampling for the Handicapped

Funding Source: Vocational Education Amendments of 1968 - Part B

Duration: January 1976 - June 30, 1976

Project Director: Dr. Chester A. Howe, Director of Instructional Operations

Requested Funding: $33,263

Project Description:

The project will provide the Career Evaluation Assessment Services of the County R.O.P. facilities in Camarillo to assess the vocational potential of 30 moderate to severe physically and educationally handicapped students in grades 10 thru 12. A three hour orientation meeting, with the parents of target students, will be conducted to explain the goals, objectives and activities of the program.

Twelve hours of inservice training will be given to participating teachers, counselors and other appropriate school staff personnel on the goals, objectives and activities of the project and their roles.

Following assessment of the students (each student will receive 20 hours of assessment at the R.O.P. facilities) the results will be used to place students in ongoing district vocational educational programs. Where possible existing programs will be modified to accommodate the needs of handicapped students.

The project staff will consist of the following personnel:

1. Project Director
2. Vocational Technician
3. Part time clerk
4. External evaluator

In addition the following personnel will be closely involved with the implementation of the project: Mr. Stan Norton, Director of Special Services, Dr. Shayle Uroff, Director of Research, Mr. Van Zant, Ventura County Director of Occupational Education, and personnel from the R.O.P. Assessment facilities.

STUDENT PROFILE

CAREER EVALUATION PROGRAM

SCHOOL _____

LAST NAME	FIRST	INITIAL

STREET ADDRESS	CITY	ZIP CODE

TELEPHONE NUMBER	AGE	BIRTHDATE	SEX	SPANISH SPEAKING ONLY
		/ /		___ YES ___ NO

REFERRED BY:	GRADE
	9 10 11 12 ☐

REASON FOR REFERRAL:

WORK HISTORY

JOB TITLE	JOB DUTIES	REASON FOR LEAVING
JOB TITLE	JOB DUTIES	REASON FOR LEAVING

DISABILITIES: (Include functional limitations, medication, etc.)

EDUCATIONAL-VOCATIONAL TESTING (Name & date of test, scores, etc.)
Please attach transcript if available

COMMENTS: (Include hobbies, interests, etc.) Use back of page if necessary

AGENDA
Advisory Meeting
Project "BH"
February 20, 1976

I. Proposed Calendar
   February - Screening and contact of parents
   March----- Work sampling, in-service training for parents and teachers
   April----- Evaluation and de-briefing, field trip and job placement
   May------- Write-up of project, evaluation of existing programs
   June------Printing and distribution of final report

II. Screening Procedures

III. Parents
   A. Contacting
   B. Pre-testing
   C. In-service training
   D. Post testing
   E. De-briefing

IV. Teacher In-service Training
   A. Orientation & pre-testing (2 hours)
   B. Observation of sampling (ROP & HSA, 5 hours)
   C. CMMIS (2 hours)
   D. Post-testing and evaluation (1 hour)
   E. Total remaining hours (4 hours)

V. Physical Details
   A. Transportation
   B. Lunches and ROP/HSA

VI. Criteria for Write-up

SUGGESTIONS FOR:

TEACHER IN-SERVICE TRAINING

1 hour	-	Orientation Meeting
4 hours	-	On-Location Training Observation - ROP, HSA (Monday)
2 hours	-	Evaluation of Student by ROP or HSA Evaluator (Friday)
2 hours	-	Manpower Presentation
1 hour	-	Tour of Adult Education Vocational Facilities Workshop
1 hour	-	Parent/Student Debriefing
1 hour	-	Post-test and Evaluation of Project
12 hours	Total	

PARENT IN-SERVICE TRAINING

1 hour	-	Orientation (to stress support and positive reinforcement of child)
1 hour	-	Student/Parent/Teacher/Technician Debriefing
1 hour	-	Post-testing and Evaluation of Project
3 hours	Total	

OPTIONAL: Observation at ROP/HSA of Sampling Procedures

PAGES 41 THROUGH 46 CONTAINING NAMES OF STUDENT PARTICIPANTS WERE REMOVED FROM THIS DOCUMENT PRIOR TO ITS BEING SUBMITTED TO THE ERIC DOCUMENT REPRODUCTION SERVICE.

SIMI VALLEY UNIFIED SCHOOL DISTRICT

Parent Orientation

Career Guidance Center

March 2, 1976

7:30 P.M.

INTRODUCTION: Stan Norton, Director of Special Education

A. Student Selection
B. Introduction of Staff
C. How and why Simi was selected for Project

PURPOSE: Terry Dinneen, Work Evaluation Supervisor, Health Services Agency and Jerry Kinzell, Occupational Counselor, R.O.P.

A. Regional Occupational Program & Health Services Agency Facilities - Relationship to Special Education Students
B. Explanation of National, State & Local levels
C. Limitations of program
D. How Work Sampling relates to actual work world

OBJECTIVES: Dr. Chet Howe, Director of Instructional Operations

A. Countywide objectives
B. Local programs

PROJECT TIME LINE: Mark Shelley & Treva Honsberger, Vocational Technicians

A. Time line
B. Invitation to parents to visit facilities
C. Parent authorization forms

WORK SAMPLING EXHIBIT

PROJECT TIMELINE

I. WORK SAMPLING AND EVALUATION
3/8 - 3/12

Laura Lee, SVHS
Marie Ternosky, SVHS
Craig Smith, Royal
Marilyn Sanders, Royal
Dale Richards, Royal
Sharon Mestaz, Sequoia — Health Services Agency
Royce Hunneman, Royal
Sherri Freed, Royal
Kim Hard, SVHS
Jerry Maulding, SVHS
Tim Eaton, SVHS

3/15 - 3/19

Kathy Evelyn, SVHS
Diana Douglas, SVHS
Patricia Arius, SVHS — R.O.P. Center
Dan Ransom, SVHS
Randy Lael, SVHS

3/22 - 3/26

Michael Winters, Royal
Donna Beebe, Royal
Robert Austin, Royal — R.O.P. Center
Roy Childers, Royal
Dena Hounsley, Royal

3/29 - 4/2

George Jepsen, SVHS
Paul Sims, SVHS
Howard Schwartz, SVHS — R.O.P. Center
Matthew Kenny, SVHS
Steve Licker, SVHS

4/5 - 4/9

Debbie Smith, Royal
Ron Laughter, Royal — R.O.P. Center
Sheila Jones, Royal
Chris Hansen, Royal

II. PARENT/TEACHER CONFERENCES
4/19 - 5/7

III. POSTTESTING AND EVALUATION
5/10 - 5/14

IV. FINAL REPORTS
5/17 - 6/4

SIMI VALLEY UNIFIED SCHOOL DISTRICT
Pupil Personnel Services
875 E. Cochran St.
Simi Valley, Ca. 93065

AUTHORIZATION FOR RELEASE OF INFORMATION
Non-School Agency

I hereby request and authorize the SIMI VALLEY UNIFIED SCHOOL DISTRICT to release Educational & Health Records, & Photographs regarding _____ to Ventura County Superintendent of Schools Office and County of Ventura Health Services Agency.

It is understood and agreed that the authorized institution or individual will not permit any other party to have access to such information without the written consent of the student's parent or the adult student.

_____ _____
witness signature of parent or guardian

_____ _____
date relationship

* *

I hereby request and authorize Ventura County Superintendent of Schools Office and County of Ventura Health Services Agency to release Work Evaluation Results information concerning _____
name of student
to Simi Valley Unified School District, Departments of Special Education and Instructional Operations.

It is understood and agreed that the authorized institution or individual will not permit any other party to have access to such information without the written consent of the student's parent or the adult student.

_____ _____
witness signature of parent or guardian

_____ _____
date relationship

Date_____

ROYAL HIGH SCHOOL

To the teachers of _____

The above named student will be participating in a special vocational educational program during the week of _____.

He/she will be taking part in a work sampling program at either the Regional Occupational Program facility or the Health Services Agency in Ventura. The work sampling is designed to help him better evaluate future employment possibilities.

We would like to request that this student be permitted to make up any work missed during this week, either prior to or following his actual absence. We definitely would like to prevent his falling behind in regular school work while taking part in this program.

If you have any questions or would like more information, please call either his Special Education teacher, _____ or me. I'm in the CGC.

Thank you for your cooperation.

_____
Vocational Technician

Royal High School

Memo to Royal High School Counselors

From: Treva Honsberger, Vocational Technician, VEA Project "BH"

I thought you might like an idea of what "Project BH" is all about. It's a federally funded project whose goal is vocational placement of Special Ed students: possible job placement, vocational classes, ROP programs, college or trade school if advantageous, etc.

This is to be accomplished by work sampling at either the ROP center in Oxnard or the Health Services Agency located in the hospital in Ventura. Each of the thirty Special Ed kids involved in this project will receive twenty hours of work sampling and career counseling. They will be absent from classes for five days (per attached schedule). We will go with them on the bus, stay with them during the work sampling, take them to lunch and return with them. This will all occur within the normal school day hours. I will send notes to their other teachers to inform them of the reason for their absences and to request make-up work.

At the end of the sampling there will be a conference with the parents, Special Ed teacher and each child to go over the results.

An orientation for parents was held last night and we had a little better than 50 per cent response. Most parents seemed very supportive. We are taking the Special Ed teachers Friday to visit both facilities, and will begin the actual work sampling on Monday.

Please get in touch if you have any questions, suggestions or information that you think we should have. I will be in the career center when I am on campus. I apologize for not doing this sooner - there simply has not been enough time.

SIMI VALLEY HIGH SCHOOL

HOME OF THE PIONEERS

ROBERT J. JACOB PRINCIPAL

June 3, 1976

Dear ,

Remember us talking about a Job Survival Skills workshop? Well, here are the details:

The Youth Employment Service (Y.E.S.) of Simi Valley is sponsoring it, and what it is meant to do is aquaint you with how to find a job, how to present yourself in an interview, how to fill out job applications, how to make out your resume, how to get along with supervisors and co-workers, and just generally orient you to the world of work. Some of the ways they do this is by using a video-tape machine, so you can can actually see yourself in an interview situation, and 'role-playing', which is acting out actual job situations.

This workshop will be offered the week after school's out, June 21-25, from 9 - 11 am. This will give you plenty of time to get out and put what you learn to work and find a job!

If you want to go, and I really think you would get alot from it, call the Youth Employment Service at 522-HIRE, and they will put your name on the list and tell you where its going to take place. I really hope you'll go, and if there is anything more I can do to help, let me know.

Happy Job Hunting!

Sincerely,

Mark Shelley

Mark Shelley, Vocational Technician

P.S.-Show this letter to your parents and ask them what they think. They might even let you out of washing the dishes or mowing the lawn if you decide to go!

5400 COCHRAN, SIMI VALLEY, CALIF.93063 PHONE 526-0220

RESULTS AND CONCLUSIONS

Results and Conclusions

Due to the nature of the project, results, in their various modes, were difficult to interpret and in some cases it was necessary to base conclusions upon direct observations in combination with test and evaluative data. The analysis of the following results are thus interpreted.

Outcome of Measurable Performance Objectives

1. Teacher In-service Training

Over 12 hours of in-service training was provided for teachers in connection with this project. Time allotment was as follows:

2 hours - Initial Orientation (2/10/76)
5 hours - Visitation of Facilities (3/5/76)
4 hours - Staffing Session (4/28/76)
2 hours - Manpower Presentation (4/28/76)
1/2-3 hours - Parent Conferences

Approximately 70% of the special education teachers were actively involved in the activities throughout the entirety of the project. The remaining teachers attended at least seven hours of the in-service component.

2. Parent Participation

60 per cent of the parents attended the initial orientation program, while 65 per cent attended conferences to discuss the results of the work evaluation. Although this did not meet the objective of 75 per cent participation, to have two out of three parents attend a session to discuss the vocational potential and plans for their child was considered both significant and respectable.

3. Student Evaluation

Two students dropped out of the program due to previous commitments, and one of those vacancies was filled. Twenty-nine students were finally evaluated, and the written evaluation reports were distributed to appropriate school personnel.

Pre-tests/post-tests sets were collected on 80 per cent of the participating students. The more severely involved handicapped students were unable to complete one inventory or the other. Results of the CPI pre-test/post-test are summarized in Table 2 (page 45). The limitations of the test instrument have already been described. No drastically significant differences were observed, yet several trends are alluded to:

a. The experimental group changed their expressed interests more than did the control. This may indicate that exposure to the work sampling made the experimental group more aware of vocational opportunities.

b. More certainty as to the experimental group's interests are revealed. Combined with the greater number of changes in this group, it could indicate a more realistic view of their vocational outlook.

c. No significant differences are observed in either changes in or certainty of aptitudes between the two groups. This may be a possible indication that the students did not understand the concept of "aptitudes" and/or the purpose of the sampling.

d. The changes in types of training for the experimental group, besides being greater, were almost exclusively a switch from an academic to a vocational type of preparation, such as apprenticeships or trade schools. Although it must be admitted that the work sampling was geared around benchwork, clerical and industrial occupations, yet the fact that over half the experimental group indicated a change of this type could possibly

CPI Pre-test/Post-test Summary of Results

Variable	Experimental	Control
Interests - (Question C.)		
No change -	14%	40%
1 change -	72%	35%
2 changes -	14%	20%
Certainty of Interests (D.)		
No change -	32%	35%
More certain -	41%	30%
Less certain -	27%	35%
Aptitudes (E.)		
No change -	9%	5%
1 change -	41%	65%
2 changes -	50%	30%
Certainty of Aptitudes (F.)		
No change -	32%	40%
More certain -	45%	40%
Less certain -	23%	20%
Future Plans (H.)		
No change -	27%	30%
More training -	14%	20%
Less training -	5%	15%
Change in type of training -	54%	35%
Educational and Career Planning (L.)		
No change -	41%	60%
Need less help -	45%	20%
Need more help -	14%	20%
Occupational Choices (O.)		
No change -	19%	20%
1 change -	27%	35%
2 changes -	54%	45%

Table 2

be indicative of a realization of their abilities and possibilities for success in such an area.

A look at the summary of post-test results regarding certainty of interests, aptitudes, and career planning (Table 3, page 47) reveals no significant differences between groups relating to interests and aptitudes. The experimental group, however, indicates more certainty in educational and career planning. This could be partially due to the effects of the project.

It is to be taken into consideration that many, maybe even most, of the changes gauged by the CPI are a result of vocational maturity, which is closely linked with social and personal maturity. It is evident, then, in dealing with a handicapped population, that these areas would lag behind those of regular students. The intent of this project was to aid in the development of that vocational maturity. Direct observation of the student's behavior and reaction pointed out two areas in which the experimental group benefited as a direct result of the project:

1) Many of the students gained a sense of increased self-worth in that they were able to do things they had not seen themselves capable of previously, and 2) their vocational horizons were significantly broadened from their exposure to many new areas of work. These were seen in both their behavior and conversation, and is not always apparent in the results from the CPI or even in the feedback forms.

4. Student Placement

Due to time limitations, only limited placement was accomplished. Thirty per cent of the experimental group had been

Student Attitudinal Summary -- Post-test (CPI)

Variable	Experimental	Control
Certainty of Interests		
Certain -	32%	25%
Fairly sure -	45%	50%
A little uncertain -	19%	15%
Very uncertain -	4%	10%
Certainty of Aptitudes		
Certain -	32%	15%
Fairly sure -	41%	55%
A little uncertain -	27%	30%
Very uncertain -	0%	0%
Educational and Career Planning		
Need considerable help -	14%	5%
Need additional help -	32%	65%
Need no help -	46%	30%

Table 3

signed up for ROP classes as of the end of school, four students attended a summer Job Survival Skills program, and two were involved in volunteer job exploration (one as a candy-striper and one in a horticultural nursery). The information has been forwarded to teachers and counselors, so further placement may take place next fall.

Teacher Feedback

Results from the teacher feedback forms are summarized in Table 4 (page 50-51). Generally, teachers seemed to be in favor of the program and were actively involved. Many of the shortcomings of the project noted by the technicians (e.g., time limitation, problem of project orientation, etc.) were also pointed out by the teachers. These suggestions will prove valuable in revising and improving the program.

Table 4

Summary of Results

TEACHER FEEDBACK*

Work Sampling for Handicapped Students

Please comment on the following areas of the project:

1. Selection of students for Sampling -

   Teachers wish to either select or prioritize students for participation (80%).
   Random sampling not well received.

2. Scheduling of students for Sampling -

   Majority reported *"Good"* or *"Good under circumstances."* (90%)
   One commented they should not miss so much class. (10%)

3. In-service orientation (Mar. 5) -

   Good or excellent (40%).
   Disorganized but informative (10%).
   Disorganized (10%).
   Not long enough (10%).
   Unnecessary (20%).
   No response (10%).

4. ROP & County Hospital facilities -

   Good, excellent or adequate (80%).
   Better units available elsewhere (10%).
   Do not have facilities for more severely handicapped (10%).

5. In-service staffing -

   Good or excellent (30%).
   Need more individualized meetings & discussion (30%).
   Did not attend (40%).

6. Written Reports of results -

   Excellent, good, thorough and realistic (70%).
   Average (30%)
   Comments: *"perhaps difficult for parents to read."*
   "should be written less clinically."

7. Debriefing of students -

   Good (30%).
   Time available had limiting effect (10%).
   EMR students did not understand what was taking place (20%).
   Should be done by ROP or HSA staff (20%).
   No response (20%).

*100% response

8. Parent conferences -

Informative, good (30%).
Did not participate (40%).
Inadequate (10%).
No response (20%).

9. Vocational Technicians -

Helpful, well-informed, excellent, willing, reliable (70%)
Limited background and experience (10%).
No response (20%)

10. Student benefits of program -

Difficult to determine at this point, some benefit (40%).
Important in planning vocational training, good experience (30%).
No response (30%).

Comments:

"For many it was a start of their thinking about jobs in the future. Each student enjoyed the individual attention. Some would have benefitted more next semester when more ready and more mature."

"These students need professional career guidance counseling to assist them after sampling, otherwise I fear that they will think the program is of no benefit."

Parent Feedback

Response to the mailed feedback questionnaires for this group was only 25 per cent, which was disappointing. Only parents and students in the experimental group were given the forms. Parents who responded felt that the program was "somewhat effective" in relationship to how their child viewed himself and the program. The orientation was seen as informative, and the parent conferences were very informative. Comments received indicated a concern for both the quality and continuation of the program. It is safe then to conclude that this project met with significant parental support.

Table 5

Summary of Results*

PARENT FEEDBACK

Work Sampling for Handicapped Students

1. How effective do you think this program was in relation to:

   a. Your child's positive view of himself/herself?

      43% very effective 43% somewhat effective

      14% slightly effective ☐ ineffective ☐ don't know

   b. Your child's awareness of his/her actual abilities?

      ☐ very effective 86% somewhat effective

      14% slightly effective ☐ ineffective ☐ don't know

   c. Your child's awareness of different possible work areas in which he/she can be successfully involved?

      43% very effective 43% somewhat effective

      14% slightly effective ☐ ineffective ☐ don't know

   d. Making the possibility of meaningful work more a reality for your child?

      ☐ very effective 86% somewhat effective

      14% slightly effective ☐ ineffective ☐ don't know

2. How effective does your child think this program was?

   14% very effective 72% somewhat effective

   14% slightly effective ☐ ineffective ☐ don't know

3. How informative was the initial program orientation for you?

   29% very informative 29% somewhat informative

   ☐ slightly informative ☐ not informative 42% didn't attend

4. How informative was the conference discussing the results of the evaluation?

   72% very informative 14% somewhat informative

   14% slightly ☐ not informative ☐ didn't attend

5. Observations and comments (We would welcome any suggestions for improving the program, assuming that it will be possible to continue next year.)

   "The people who give the test must realize they are dealing with high school kids and not adults who have worked and now need rehabilitation."

   "Every student should have the option of going through a program of this type if he/she is in doubt of their ability."

* 25 per cent response

Student Feedback

Response from students in many cases was somewhat ambiguous. It is felt that many of the students who responded did not understand the significance of the form. Even so, the largest response to each question was a positive response to their experience. Some of their comments will also be helpful in improving the program.

Table 6

Summary of Results

STUDENT FEEDBACK*

Now that you have finished the work sampling and seen the results, we would like to know what you thought of the program. Please tell us honestly how you feel about it, and if you have any suggestions as to how it could be improved, include them under "Comments." Thank you for your time and patience. If we are able to continue next year, please come by and see us. We'd like to know how you're doing.

1. What did the work sampling tell you about yourself that you didn't already know?

   I'm a good worker; good with my hands; more abilities than I knew (34%).
   Caught on easy (10%).
   Learned nothing more (24%).
   No response (14%).

2. What did you like and/or dislike about the work sampling?

   Likes:
   Most or all of it (38%).
   A particular work sample or activity (24%).
   Getting out of school (4%).
   Staff (4%).

   Dislikes:
   Difficulty of tasks (10%).
   Too short timewise (10%).
   Food was bad (10%).
   Didn't like any of it too much (4%).

3. Is there a better way to schedule the sampling? If so, choose one of the following, or give us your ideas:

a)	One week, four hours per day	58%
b)	Two weeks, two hours per day	4%
c)	Four weeks, one period per day	8%
d)	After school	14%
e)	Other Entire semester	4%
	One week, six hours per day	4%

4. How do you plan to use what you have learned about yourself?

   Try and get a job (37%).
   Work better (4%).
   Look at myself differently (4%).
   Don't know (14%).
   Learned nothing (4%).
   No response (17%).

5. How could we improve the work sampling?

   No change needed (17%).
   Job placement (8%).
   More work samples (17%).
   Harder tasks (4%).
   Hold after school (4%).
   Improve lunches (8%).
   Don't know (10%).
   No response (21%).

*85% *response.* Some students made more than one comment under each question.

(continued)

LIMITATIONS

Limitations

Generalizability of Results

Because of the cross-section of handicaps involved in the sampling, it is difficult to generalize any of the findings to special education students as a whole or to a particular program within special education. Observation and analysis of the individuals sampled leads to the preliminary conclusion that this type of procedure is of most immediate benefit to the following groups in rank order:

Learning Disability
Visually Handicapped
Aphasic
Deaf and Hard of Hearing
Orthopedically Handicapped
TMR
EMR

Special procedures for each handicap, however, would increase the benefit to the students and lend to a more accurate assessment of the results.

Time and Distance

The major limitation of this project was undoubtedly the brevity of its duration due to lateness of funding. Originally scheduled to begin when school commenced, the project did not get underway until mid-February, and at that time no specific plans had been arrived at. This affected several crucial areas.

The selection of students took place over two weeks. Unfortunately, the willingness of students to participate was not investigated, requiring numerous substitutions in the original sample and many scheduling difficulties.

Transportation was another problem area. The trip to Ventura and back is 65 miles, and the journey to Camarillo is 50 miles round trip. This caused approximately three to four hours of evaluation to be missed each week. Thus, for efficiency, the work sampling of students was accomplished in a continuous five week period. Staffing, reports and conferences followed as quickly as possible. Even so, some nine or ten weeks elapsed between the evaluation and de-briefing for those who were tested near the beginning. More immediate feedback, it is felt, would have strengthened the impact of the sampling on the students.

Due to shortness of time again, the staffing had to be held in one day. This required many teachers to listen to all evaluations rather than just that of their own students. Individualized staffings with teachers can be a key to proper follow-up.

Time for follow-up with the students was almost non-existent. Exploration of their interests and jobs relating to their aptitudes is as vital as the evaluation itself. More individual attention with each student after the evaluation might help crystallize the experience and motivate him/her to explore different possibilities.

Uniqueness of Project

It was apparent from the start that very few of the people involved in the implementation of the project were familiar with the work sampling process. This raised some unique problems, which were exaggerated by the time limitation.

The project technicians came into the project "cold turkey," knowing nothing about work sampling. Both had some experience in career guidance and counseling, which was a great asset. A brief visit to each of the evaluation units was the extent of their orientation prior to the actual sampling of students. This made it difficult to distribute detailed information to teachers, parents and students at the beginning of the project. Much was learned in the actual sampling process, and they were able to put this knowledge to work in the student de-briefings and parent conferences.

Neither of the evaluation facilities had been extensively involved with high school students prior to this project. This was seen in some of the reports and the difficulty each facility had in orienting the students. As a first attempt at adapting a vocational rehabilitation procedure to an educational setting and population, much was learned and will be valuable in further evaluation experiences. Both parents and teachers were aware of this weakness (see Table 5, item 6 and Table 4, item 5). Revisions in the procedures will need to be made should the program continue.

Despite all the limitations, the project proceeded smoothly and efficiently, with significant and observable results being accrued.

RECOMMENDATIONS

Recommendations

Involvement of Related School Personnel

The involvement of Career Guidance Technicians (in the Career Centers), Vocational Counselors, Vocational Education Teachers and School Psychologists, acting in their areas of expertise would add great dimension and depth to the program. Their inclusion in orientation and in-service activities would raise their awareness and provide solutions to many of the limitations cited, particularly in the area of follow-up. Counselors, particularly, would be a great asset to the students if involved in this procedure.

Immediate Feedback from Evaluation

The time lapse between the actual work sampling evaluation and the student de-briefings tended to have a dampening effect on their initial budding enthusiasm about the world of work and careers. Two things might help this cooling effect: First, more counseling during the evaluation by the evaluation staff would help give the students immediate direction and motivation. This may involve more time per evaluation, but is seen as vital to the process. If a student was also able to read his evaluation a week after his evaluation, then the follow-up could start and enthusiasm would be maintained.

Additional Areas for Guidance

Many of the students in the handicapped population have personal problems (family, behavior, psychological) that must be dealt with before any meaningful vocational decision making can take place. Either counseling by school counselors and psychologists or referrals to other sources needs to be included in a career placement program for the handicapped.

Additional vocational counseling is also indicated. Directed exploration of expressed interests and information of jobs available should be made available to these students.

A recommendation which came up frequently in the reports was assertive training or confidence-building of some nature. As most of these students would not be able to participate in a regular training program of this sort (due to their already low self concept), it would be beneficial to develop a pre-assertiveness training program for this group, possibly led by a handicapped facilitator, to boost their feelings of self-worth and ability to succeed in social and work relationships.

The Job Survival Skills program offered by ROP would be excellent for these students if geared down to their level. Most of them have never been exposed to work situations or have even applied for a job. This workshop could be offered during school hours and would be of immense value to these students.

Evaluation of Vocational Education Programs

In an effort to place these students into vocational training programs, the present vocational education programs, including the individual junior high and high schools, Adult Education and ROP should be evaluated as to their feasibility for placing special education students into them and their chances of success on the job after such training is completed. A comprehensive list could also be compiled of post-diploma training institutes which would accept special students, their fields and duration of training and cost, to be used in directing graduating seniors. A list of local employers willing to employ such students could also be obtained, and possible work experience stations set up in these locations.

Expansion and Continuation of Program

Since observable benefits to students have resulted from this project, and as there is no other program available for vocational evaluation and guidance for special education students, it is recommended that the program continue next year, expanding its services to 60 more students including ninth graders, and following up on students evaluated during this project's duration. If possible, the above recommendations should be included, as this would provide a comprehensive career guidance program for these handicapped high school students, enabling them to find a meaningful place in the world of work.

APPENDICES

80

Appendix A

Explanation of Relationships within
Data, People and Things Hierarchies
and
Worker Trait Relationships

from
Dictionary of Occupational Titles
1965
Volume II
Occupational Classification
and
Industry Index
Third Edition
pages 649-656

APPENDIX A

Explanation of Relationships Within Data, People, Things Hierarchies

Much of the information in this edition of the Dictionary is based on the premise that every job requires a worker to function in relation to Data, People, and Things, in varying degrees. These relationships are identified and explained below. They appear in the form of three hierarchies arranged in each instance from the relatively simple to the complex in such a manner that each successive relationship includes those that are simpler and excludes the more complex.[1] The identifications attached to these relationships are referred to as worker functions, and provide standard terminology for use in summarizing exactly what a worker does on the job by means of one or more meaningful verbs.

A job's relationship to Data, People, and Things can be expressed in terms of the highest appropriate function in each hierarchy to which the worker has an occupationally significant relationship, and these functions taken together indicate the total level of complexity at which he must perform. The last three digits of the occupational code numbers in the Dictionary reflect significant relationships to Data, People, and Things, respectively.[2] These last three digits express a job's relationship to Data, People, and Things by identifying the highest appropriate function in each hierarchy to which the job requires the worker to have a significant relationship, as reflected by the following table:

DATA (4th digit)	PEOPLE (5th digit)	THINGS (6th digit)
0 Synthesizing	0 Mentoring	0 Setting-Up
1 Coordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-Controlling
3 Compiling	3 Supervising	3 Driving-Operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-Signaling	6 Feeding-Offbearing
7 No significant relationship	7 Serving	7 Handling
8 No significant relationship	8 No significant relationship	8 No significant relationship

DATA: Information, knowledge, and conceptions, related to data, people, or things, obtained by observation, investigation, interpretation, visualization, mental creation; incapable of being touched; written data take the form of numbers, words, symbols; other data are ideas, concepts, oral verbalization.

0 **Synthesizing:** Integrating analyses of data to discover facts and/or develop knowledge concepts or interpretations.

1 **Coordinating:** Determining time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determinations and/or reporting on events.

2 **Analyzing:** Examining and evaluating data. Presenting alternative actions in relation to the evaluation is frequently involved.

3 **Compiling:** Gathering, collating, or classifying information about data, people, or things. Reporting and/or carrying out a prescribed action in relation to the information is frequently involved.

4 **Computing:** Performing arithmetic operations and reporting on and/or carrying out a prescribed action in relation to them. Does not include counting.

5 **Copying:** Transcribing, entering, or posting data.

6 **Comparing:** Judging the readily observable functional, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of data, people, or things.

PEOPLE: Human beings; also animals dealt with on an individual basis as if they were human.

0 **Mentoring:** Dealing with individuals in terms of their total personality in order to advise, counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual, and/or other professional principles.

[1] As each of the relationships to People represents a wide range of complexity, resulting in considerable overlap among occupations, their arrangement is somewhat arbitrary and can be considered a hierarchy only in the most general sense.

[2] Only those relationships which are occupationally significant in terms of the requirements of the job are reflected in the code numbers. The incidental relationships which every worker has to Data, People, and Things, but which do not seriously affect successful performance of the essential duties of the job, are not reflected.

690-377 O—65—vol. 2——42

1 **Negotiating:** Exchanging ideas, information, and opinions with others to formulate policies and programs and/or arrive jointly at decisions, conclusions, or solutions.

2 **Instructing:** Teaching subject matter to others, or training others (including animals) through explanation, demonstration, and supervised practice; or making recommendations on the basis of technical disciplines.

3 **Supervising:** Determining or interpreting work procedures for a group of workers, assigning specific duties to them, maintaining harmonious relations among them, and promoting efficiency.

4 **Diverting:** Amusing others.

5 **Persuading:** Influencing others in favor of a product, service, or point of view.

6 **Speaking-Signaling:** Talking with and/or signaling people to convey or exchange information. Includes giving assignments and/or directions to helpers or assistants.

7 **Serving:** Attending to the needs or requests of people or animals or the expressed or implicit wishes of people. Immediate response is involved.

THINGS: Inanimate objects as distinguished from human beings; substances or materials; machines, tools, equipment; products. A thing is tangible and has shape, form, and other physical characteristics.

0 **Setting Up:** Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments to prepare them to perform their functions, change their performance, or restore their proper functioning if they break down. Workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines are included here.

1 **Precision Working:** Using body members and/or tools or work aids to work, move, guide, or place objects or materials in situations where ultimate responsibility for the attainment of standards occurs and selection of appropriate tools, objects, or materials, and the adjustment of the tool to the task require exercise of considerable judgment.

2 **Operating-Controlling:** Starting, stopping, controlling, and adjusting the progress of machines or equipment designed to fabricate and/or process objects or materials. Operating machines involves setting up the machine and adjusting the machine or material as the work progresses. Controlling equipment involves observing gages, dials, etc., and turning valves and other devices to control such factors as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Setup involves several variables and adjustment is more frequent than in tending.

3 **Driving-Operating:** Starting, stopping, and controlling the actions of machines or equipment for which a course must be steered, or which must be guided, in order to fabricate, process, and/or move things or people. Involves such activities as observing gages and dials; estimating distances and determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear lifts or levers. Includes such machines as cranes, conveyor systems, tractors, furnace charging machines, paving machines and hoisting machines. Excludes manually powered machines, such as handtrucks and dollies, and power assisted machines, such as electric wheelbarrows and handtrucks.

4 **Manipulating:** Using body members, tools, or special devices to work, move, guide, or place objects or materials. Involves some latitude for judgment with regard to precision attained and selecting appropriate tool, object, or material, although this is readily manifest.

5 **Tending:** Starting, stopping, and observing the functioning of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 **Feeding-Offbearing:** Inserting, throwing, dumping, or placing materials in or removing them from machines or equipment which are automatic or tended or operated by other workers.

7 **Handling:** Using body members, handtools, and/or special devices to work, move, or carry objects or materials. Involves little or no latitude for judgment with regard to attainment of standards or in selecting appropriate tool, object, or material.

NOTE: Included in the concept of Feeding-Offbearing, Tending, Operating-Controlling, and Setting Up, is the situation in which the worker is actually part of the setup of the machine, either as the holder and guider of the material or holder and guider of the tool.

APPENDIX B

Explanation of Worker Trait Components

Those abilities, personal traits, and individual characteristics required of a worker in order to achieve average successful job performance are referred to as worker traits. Occupational information presented in volumes I and II is based in part on analysis of required worker traits in terms of the six distinct worker trait components described in this appendix. These six components have been selected for this purpose because they provide the broadest and yet most comprehensive framework for the effective presentation of worker trait information. Within this framework the user will find data concerning the requirements of jobs for: (1) The amount of general educational development and specific vocational preparation a worker must have, (2) the specific capacities and abilities required of him in order to learn or perform certain tasks or duties, (3) preferences for certain types of work activities or experiences considered necessary for job success, (4) types of occupational situations to which an individual must adjust, (5) physical activities required in work situations, and (6) physical surroundings prevalent in jobs.

Information reflecting significant worker trait requirements is contained, explicitly or by implication, in the job definitions in volume I. In the Worker Traits Arrangement in volume II, the qualifications profile for each worker trait group shows the range of required traits and/or levels of traits for the first five of these components. Numbers or letters are used to identify each specific trait and level. In this appendix, these identifying numbers and letters appear in italics.

The worker trait components are:

I. Training time (general educational development, specific vocational preparation)
II. Aptitudes
III. Interests
IV. Temperaments
V. Physical demands
VI. Working conditions [1]

I. Training Time

The amount of general educational development and specific vocational preparation required for a worker to acquire the knowledge and abilities necessary for average performance in a particular job.

General Educational Development: This embraces those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions, and (b) acquisition of "tool" knowledges, such as language and mathematical skills. It is education of a general nature which does not have a recognized, fairly specific, occupational objective. Ordinarily such education is obtained in elementary school, high school, or college. It also derives from experience and individual study.

[1] Working conditions were recorded as part of each job analysis, and are reflected, when appropriate, in job definitions in volume I. However, because they did not contribute to the homogeneity of worker trait groups, they do not appear as a component in the Worker Traits Arrangement.

The following is a table explaining the various levels of general educational development.

GENERAL EDUCATIONAL DEVELOPMENT

Level	Reasoning Development	Mathematical Development	Language Development
6	Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Apprehend the most abstruse classes of concepts.	Apply knowledge of advanced mathematical and statistical techniques such as differential and integral calculus, factor analysis, and probability determination, or work with a wide variety of theoretical mathematical concepts and make original applications of mathematical procedures, as in empirical and differential equations.	Comprehension and expression of a level to —Report, write, or edit articles for such publications as newspapers, magazines, and technical or scientific journals. Prepare and draw up deeds, leases, wills, mortgages, and contracts. —Prepare and deliver lectures on politics, economics, education, or science. —Interview, counsel, or advise such people as students, clients, or patients, in such matters as welfare eligibility, vocational rehabilitation, mental hygeine, or marital relations. —Evaluate engineering technical data to design buildings and bridges.
5	Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions, in books, manuals, and mathematical or diagrammatic form. Deal with several abstract and concrete variables.		
4	Apply principles of rational systems[1] to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.	Perform ordinary arithmetic, algebraic, and geometric procedures in standard, practical applications.	Comprehension and expression of a level to —Transcribe dictation, make appointments for executive and handle his personal mail, interview and screen people wishing to speak to him, and write routine correspondence on own initiative. —Interview job applicants to determine work best suited for their abilities and experience, and contact employers to interest them in services of agency. —Interpret technical manuals as well as drawings and specifications, such as layouts, blueprints, and schematics.
3	Apply common sense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	Make arithmetic calculations involving fractions, decimals and percentages.	Comprehension and expression of a level to —File, post, and mail such material as forms, checks, receipts, and bills. —Copy data from one record to another, fill in report forms, and type all work from rough draft or corrected copy. —Interview members of household to obtain such information as age, occupation, and number of children, to be used as data for surveys, or economic studies. —Guide people on tours through historical or public buildings, describing such features as size, value, and points of interest.
2	Apply common sense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.	Use arithmetic to add, subtract, multiply, and divide whole numbers.	
1	Apply common sense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations encountered on the job.	Perform simple addition and subtraction, reading and copying of figures, or counting and recording.	Comprehension and expression of a level to —Learn job duties from oral instructions or demonstration. —Write identifying information, such as name and address of customer, weight, number, or type of product, on tags, or slips. —Request orally, or in writing, such supplies as linen, soap, or work materials.

[1] Examples of "principles of rational systems" are: Bookkeeping, internal combustion engines, electric wiring systems, house building, nursing, farm management, ship sailing.

Specific Vocational Preparation: The amount of time required to learn the techniques, acquire information, and develop the facility needed for average performance in a specific job-worker situation. This training may be acquired in a school, work, military, instutitional, or avocational environment. It does not include orientation training required of even every fully qualified worker to become accustomed to the special conditions of any new job. Specific vocational training includes training given in any of the following circumstances:

a. Vocational education (such as high school commercial or shop training, technical school, art school, and that part of college training which is organized around a specific vocational objective);
b. Apprentice training (for apprenticeable jobs only);
c. In-plant training (given by an employer in the form of organized classroom study);
d. On-the-job training (serving as learner or trainee on the job under the instruction of a qualified worker);
e. Essential experience in other jobs (serving in less responsible jobs which lead to the higher grade job or serving in other jobs which qualify).

The following is an explanation of the various levels of specific vocational preparation.

Level	Time	Level	Time
1	Short demonstration only.	5	Over 6 months up to and including 1 year.
2	Anything beyond short demonstration up and including 30 days.	6	Over 1 year up to and including 2 years.
3	Over 30 days up to and including 3 months.	7	Over 2 years up to and including 4 years.
4	Over 3 months up to and including 6 months.	8	Over 4 years up to and including 10 years.
		9	Over 10 years.

II. APTITUDES

Specific capacities and abilities required of an individual in order to learn or perform adequately a task or job duty.

G INTELLIGENCE: General learning ability. The ability to "catch on" or understand instructions and underlying principles. Ability to reason and make judgments. Closely related to doing well in school.

V VERBAL: Ability to understand meanings of words and ideas associated with them, and to use them effectively. To comprehend language, to understand relationships between words, and to understand meanings of whole sentences and paragraphs. To present information or ideas clearly.

N NUMERICAL: Ability to perform arithmetic operations quickly and accurately.

S SPATIAL: Ability to comprehend forms in space and understand relationships of plane and solid objects. May be used in such tasks as blueprint reading and in solving geometry problems. Frequently described as the ability to "visualize" objects of two or three dimensions, or to think visually of geometric forms.

P FORM PERCEPTION: Ability to perceive pertinent detail in objects or in pictorial or graphic material; To make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines.

Q CLERICAL PERCEPTION: Ability to perceive pertinent detail in verbal or tabular material. To observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation.

K MOTOR COORDINATION: Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and quickly.

F FINGER DEXTERITY: Ability to move the fingers and manipulate small objects with the fingers rapidly or accurately.

M MANAUL DEXTERITY: Ability to move the hands easily and skillfully. To work with the hands in placing and turning motions.

E EYE-HAND-FOOT COORDINATION: Ability to move the hand and foot coordinately with each other in accordance with visual stimuli.

C COLOR DISCRIMINATION: Ability to perceive or recognize similarities or differences in colors, or in shades or other values of the same color; to identify a particular color, or to recognize harmonious or contrasting color combinations, or to match colors accurately.

Explanation of Levels

The digits indicate how much of each aptitude the job requires for satisfactory (average) performance. The average requirements, rather than maximum or minimum, are cited. The amount required is expressed in terms of equivalent amounts possessed by segments of the general working population.

The following scale is used:

1 The top 10 percent of the population. This segment of the population possesses an extremely high degree of the aptitude.

2 The highest third exclusive of the top 10 percent of the population. This segment of the population possesses an above average or high degree of the aptitude.

3 The middle third of the population. This segment of the population possesses a medium degree of the aptitude, ranging from slightly below to slightly above average.

4 The lowest third exclusive of the bottom 10 percent of the population. This segment of the population possesses a below average or low degree of the aptitude.

5 The lowest 10 percent of the population. This segment of the population possesses a negligible degree of the aptitude.

Significant Aptitudes

Certain aptitudes appear in boldface type on the qualifications profiles for the worker trait groups. These aptitudes are considered to be occupationally significant for the specific group; i.e., essential for average successful job performance. All boldface aptitudes are not necessarily required of a worker for each individual job within a worker trait group, but some combination of them is essential in every case.

III. INTERESTS

Preferences for certain types of work activities or experiences, with accompanying rejection of contrary types of activities or experiences. Five pairs of interest factors are provided so that a positive preference for one factor of a pair also implies rejection of the other factor of that pair.

1 Situations involving a preference for activities dealing with things and objects.	vs.	*6* Situations involving a preference for activities concerned with people and the communication of ideas.
2 Situations involving a preference for activities involving business contact with people.	vs.	*7* Situations involving a preference for activities of a scientific and technical nature.
3 Situations involving a preference for activities of a routine, concrete, organized nature.	vs.	*8* Situations involving a preference for activities of an abstract and creative nature.
4 Situations involving a preference for working for people for their presumed good, as in the social welfare sense, or for dealing with people and language in social situations.	vs.	*9* Situations involving a preference for activities that are nonsocial in nature, and are carried on in relation to processes, machines, and techniques.
5 Situations involving a preference for activities resulting in prestige or the esteem of others.	vs.	*0* Situations involving a preference for activities resulting in tangible, productive satisfaction.

IV. TEMPERAMENTS

Different types of occupational situations to which workers must adjust.

1 Situations involving a variety of duties often characterized by frequent change.

2 Situations involving repetitive or short cycle operations carried out according to set procedures or sequences.

3 Situations involving doing things only under specific instruction, allowing little or no room for independent action or judgment in working out job problems.

4 Situations involving the direction, control, and planning of an entire activity or the activities of others.

5 Situations involving the necessity of dealing with people in actual job duties beyond giving and receiving instructions.

6 Situations involving working alone and apart in physical isolation from others, although the activity may be integrated with that of others.

7 Situations involving influencing people in their opinions, attitudes, or judgments about ideas or things.

8 Situations involving performing adequately under stress when confronted with the critical or unexpected or when taking risks.

9 Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against sensory or judgmental criteria.

0 Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against measurable or verifiable criteria.

X Situations involving the interpretation of feelings, ideas, or facts in terms of personal viewpoint.

Y Situations involving the precise attainment of set limits, tolerances, or standards.

V. PHYSICAL DEMANDS

Physical demands are those physical activities required of a worker in a job.

The physical demands referred to in this Dictionary serve as a means of expressing both the physical requirements of the job and the physical capacities (specific physical traits) a worker must have to meet the requirements. For example, "seeing" is the name of a physical demand required by many jobs (perceiving by the sense of vision), and also the name of a specific capacity possessed by many people (having the power of sight). The worker must possess physical capacities at least in an amount equal to the physical demands made by the job.

The Factors

1 **Lifting, Carrying, Pushing, and/or Pulling (Strength).** These are the primary "strength" physical requirements, and generally speaking, a person who engages in one of these activities can engage in all.

Specifically, each of these activities can be described as:

(1) Lifting: Raising or lowering an object from one level to another (includes upward pulling).

(2) Carrying: Transporting an object, usually holding it in the hands or arms or on the shoulder.

(3) Pushing: Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking, and treadle actions).

(4) Pulling: Exerting force upon an object so that the object moves toward the force (includes jerking).

The five degrees of Physical Demands Factor No. 1 (Lifting, Carrying, Pushing, and/or Pulling), are as follows:

S Sedentary Work

Lifting 10 lbs. maximum and occasionally lifting and/or carrying such articles as dockets, ledgers, and small tools. Although a sedentary job is defined as one which involves sitting, a certain amount of walking and standing is often necessary in carrying out job duties. Jobs are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.

L Light Work

Lifting 20 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 10 lbs. Even though the weight lifted may be only a negligible amount, a job is in this category when it requires walking or standing to a significant degree, or when it involves sitting most of the time with a degree of pushing and pulling of arm and/or leg controls.

M Medium Work

Lifting 50 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 25 lbs.

H Heavy Work

Lifting 100 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 50 lbs.

V Very Heavy Work

Lifting objects in excess of 100 lbs. with frequent lifting and/or carrying of objects weighing 50 lbs. or more.

2 **Climbing and/or Balancing:**

(1) Climbing: Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes, and the like, using the feet and legs and/or hands and arms.
(2) Balancing: Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.

3 **Stooping, Kneeling, Crouching, and/or Crawling:**

(1) Stooping: Bending the body downward and forward by bending the spine at the waist.
(2) Kneeling: Bending the legs at the knees to come to rest on the knee or knees.
(3) Crouching: Bending the body downward and forward by bending the legs and spine.
(4) Crawling: Moving about on the hands and knees or hands and feet.

4 **Reaching, Handling, Fingering, and/or Feeling:**

(1) Reaching: Extending the hands and arms in any direction.
(2) Handling: Seizing, holding, grasping, turning, or otherwise working with the hand or hands (fingering not involved).
(3) Fingering: Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm as in handling).
(4) Feeling: Perceiving such attributes of objects and materials as size, shape, temperature, or texture, by means of receptors in the skin, particularly those of the finger tips.

5 **Talking and/or Hearing:**

(1) Talking: Expressing or exchanging ideas by means of the spoken word.
(2) Hearing: Perceiving the nature of sounds by the ear.

6 **Seeing:**

Obtaining impressions through the eyes of the shape, size, distance, motion, color, or other characteristics of objects. The major visual functions are: (1) acuity, far and near, (2) depth perception, (3) field of vision, (4) accommodation, (5) color vision. The functions are defined as follows:

(1) Acuity, far—clarity of vision at 20 feet or more.
Acuity, near—clarity of vision at 20 inches or less.
(2) Depth perception—three dimensional vision. The ability to judge distance and space relationships so as to see objects where and as they actually are.
(3) Field of vision—the area that can be seen up and down or to the right or left while the eyes are fixed on a given point.

(4) Accommodation—adjustment of the lens of the eye to bring an object into sharp focus. This item is especially important when doing near-point work at varying distances from the eye.
(5) Color vision—the ability to identify and distinguish colors.

VI. WORKING CONDITIONS

Working conditions are the physical surroundings of a worker in a specific job.

1 Inside, Outside, or Both:

I Inside: Protection from weather conditions but not necessarily from temperature changes.
O Outside: No effective protection from weather.
B Both: Inside and outside.
A job is considered "inside" if the worker spends approximately 75 per cent or more of his time inside, and "outside" if he spends approximately 75 per cent or more of his time outside. A job is considered "both" if the activities occur inside or outside in approximately equal amounts.

2 Extremes of Cold Plus Temperature Changes:

(1) Extremes of Cold: Temperature sufficiently low to cause marked bodily discomfort unless the worker is provided with exceptional protection.
(2) Temperature Changes: Variations in temperature which are sufficiently marked and abrupt to cause noticeable bodily reactions.

3 Extremes of Heat Plus Temperature Changes:

(1) Extremes of Heat: Temperature sufficiently high to cause marked bodily discomfort unless the worker is provided with exceptional protection.
(2) Temperature Changes: Same as 2 (2).

4 Wet and Humid:

(1) Wet: Contact with water or other liquids.
(2) Humid: Atmospheric condition with moisture content sufficiently high to cause marked bodily discomfort.

5 Noise and Vibration:

Sufficient noise, either constant or intermittent, to cause marked distraction or possible injury to the sense of hearing and/or sufficient vibration (production of an oscillating movement or strain on the body or its extremities from repeated motion or shock) to cause bodily harm if endured day after day.

6 Hazards:

Situations in which the individual is exposed to the definite risk of bodily injury.

7 Fumes, Odors, Toxic Conditions, Dust, and Poor Ventilation:

(1) Fumes: Smoky or vaporous exhalations, usually odorous, thrown off as the result of combustion or chemical reaction.
(2) Odors: Noxious smells, either toxic or nontoxic.
(3) Toxic Conditions: Exposure to toxic dust, fumes, gases, vapors, mists, or liquids which cause general or localized disabling conditions as a result of inhalation or action on the skin.
(4) Dust: Air filled with small particles of any kind, such as textile dust, flour, wood, leather, feathers, etc., and inorganic dust, including silica and asbestos, which make the workplace unpleasant or are the source of occupational diseases.
(5) Poor Ventilation: Insufficient movement of air causing a feeling of suffocation; or exposure to drafts.

U.S. GOVERNMENT PRINTING OFFICE : 1965 O—690-377

Appendix B

Explanation of Ventura ROP

Career Evaluation Program

WHY HAVE IT?

The Career Evaluation Program was designed to assist those people who are involved in personal career planning, but who lack direction, have little experience or knowledge of the world of work, or who want to learn about their abilities and how they relate to potential employment.

WHERE

The Career Evaluation Program is located at the Ventura County Superintendent of Schools Educational Facilities, East Pleasant Valley Road and Las Posas Road, Camarillo, California.

Further information may be obtained by calling: (805) 487-7711, extension 4437

These toll free numbers may be used to call from other areas in Ventura County:

Ventura-Ojai: 648-6131, extension 4437
Santa Paula: 647-0500, extension 4437
Fillmore: 524-2292, extension 4437
Moorpark-Newbury Park-Simi-Westlake-Thousand Oaks: 529-2060, extension 4437

VENTURA COUNTY ROP
Regional Occupational Program

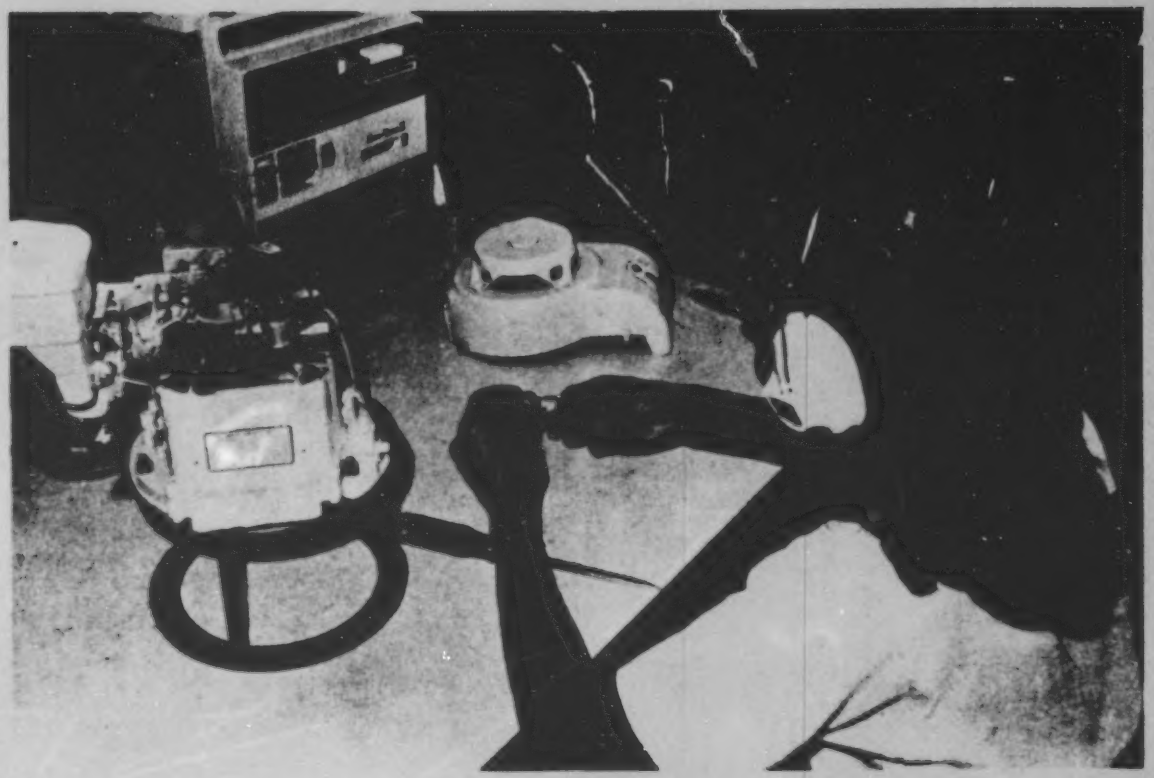
VENTURA COUNTY
SUPERINTENDENT OF SCHOOLS OFFICE
James F. Cowan, Ed.D., Superintendent

WHAT

IS THE CAREER EVALUATION PROGRAM?

THE CAREER EVALUATION PROGRAM:

The main components of the program are interest inventories, aptitude assessment, and vocational information. Most of a client's time is spent in work-sample assessment. Work samples are actual job tasks that are designed to give clients a hands-on experience in different vocational areas. They serve both as an exploration tool, and as an accurate assessment of aptitude and ability. Interest inventories are used in conjunction with work samples to further determine potential areas of exploration. Various aptitude tests, such as the General Aptitude Test Battery, are also available and are used where appropriate. All clients spend a portion of time in the Career Center exploring specific areas of vocational interest. Here they receive career counseling which includes information on job duties, training required, and the employment outlook.



HOW

Referrals to the Career Evaluation Program can be made through Ventura County Manpower Operations, other Comprehensive Employment & Training Act (C.E.T.A.) programs, or through school personnel working with handicapped and disadvantaged students. A complete evaluation takes a minimum of 20 hours. Evaluations for specific occupational areas can usually be completed in less than 10 hours. Scheduling is flexible and can be adapted to the needs of the referring agency.

CAREER EVALUATION PROGRAM

Clients may be referred to the Career Evaluation Program at the deactivated Oxnard Air Force Base in Camarillo by telephoning 487-7711, Extension 4437, for an appointment. A completed referral form together with any supporting information should be given to the Career Evaluation Program staff prior to the client's first day of evaluation.

Examples of information which could prove extremely helpful include any disabilities (together with prognosis and any functional limitations), medication that might affect performance, previous work history, and results of educational-vocational testing.

A basic evaluation can usually be completed in 20 to 25 hours. The hours and days can be flexible in order to meet the needs of the clients. Transportation to and from the Career Evaluation Program can usually be provided (on a space available basis) through the R.O.P. bus system. Clients who ride the R.O.P. buses are usually involved in evaluation for two hours per day.

The two major parts of the evaluation process are testing and work sample assessment. An attempt is made to keep paper and pencil tests to a minimum. When recent assessments of a client's reading and math achievement levels are not available, the determination of these achievement levels will be the first step in the evaluation. This is done to avoid giving them work samples or further tests that may be beyond their current level.

For those clients whose level is quite low, the determination of an ability or I.Q. score is helpful. For this determination, attention has been paid to finding tests that are culture free and not dependent on reading skills.

Interest inventories are administered to all clients. A variety is available including one that is nonverbal. Personality assessment will not be attempted with all clients, the exception being when specific questions arise or when a client appears to have some type of behavior problem that interferes with performance. In addition, various tests such as work values inventories are used when such information would be helpful. The General Aptitude Test Battery is given to clients with an appropriate reading level.

The majority of the client's time is spent in work sample assessment. Work samples are a mock up of a job, a part of a job, or a simulation of tasks required in a job. They are a "hands on" experience for clients, which allows them to try out different types of work. Each work sample is D.O.T. (Dictionary of Occupational Titles) coded and also cross-indexed to related jobs. Work samples are scored by both time and quality. Observations are an important part of work samples, yielding information on such variables as ability to follow directions, work patterns, and distractability.

All clients receive a variety of work samples to get a picture of their overall performance and ability. Ideally, the testing program will yield some information on interests, therefore, work samples can be used to follow up on these. They can evaluate specific skills and aptitudes necessary for job in an interest area.

At all times the clients are encouraged to ask questions and make comments

about the tasks they are performing. This two way communication is an important part of work sample assessment as it gives the clients an opportunity to connect what they are experiencing with the actual job world.

At some point toward the end of the evaluation, the clients spend some time in the career center exploring specific vocational areas of interest. They receive career counseling which includes information on job duties, training required, and employment outlook in occupations consistent with their aptitudes, interests, values, etc.

Upon completion of the evaluation, a report is sent to the referring school district. Included in this report are the results of any tests taken or work samples administered, a narrative of the overall performance and specific vocational assets and limitations. Where appropriate, recommendations are made for further assessment, possible training, or possible placement. The staff of the Career Evaluation Program is also available to answer any further questions or set up a staffing upon request.

Clients will be accepted from the various school districts on a first-come-first-served basis. Priority will be given to handicapped and disadvantaged clients.

In order to further enhance the employability of clients of the Career Evaluation Program, the Singer Job Survival Skills Program will be offered. Job Survival Skills Program activities are based upon group inter-action which facilitates maximum involvement and participation. Group discussion, games, role playing, and written exercise create an active learning process that will allow the client to more effectively seek and maintain employment.

CAREER EVALUATION PROGRAM

TESTS

Interest Inventories

Kuder Interest Inventory
Ohio Vocational Interest Survey (OVIS)
Picture Interest Inventory
California Occupational Preference Survey

Reading & Math Test

Adult Basic Learning Exam
SRA Reading Index
SRA Arithmetic Index

Ability Tests

Revised BETA
Culture Fair Test of Intelligence
General Aptitude Test Battery

Values Inventories

Study of Values
Work Values Inventory

Personality

16 Personality Factors (16PF)

CAREER EVALUATION PROGRAM

WORK SAMPLES

ADDING MACHINE - Measures the ability to do simple addition on an adding machine. Accuracy and time are the important factors.

BENNETT HAND TOOL DEXTERITY - Dexterity in working with hand tools

CASH REGISTER - Measures the ability to learn the operation of a cash register and to make change.

CONDENSING PRINCIPLE - Measures the ability to accurately reproduce a diagram of a steam boiler

CONSTRUCTION LAYOUT - Measures several things: 1. Following a series of written directions, 2. Ability to identify and use common hand tools, 3. Precision measuring, and 4. Problem solving ability

CRAWFORD SMALL PARTS DEXTERITY TEST - Hand & finger dexterity while working with small pieces

FILING BY LETTER - Measures the aptitude for, and interest in simple filing. The work sample also involves the ability to visualize sequential numbers.

FILING BY NUMBER - Measures aptitude for, and interest in this one part of the clerical field. The sample also involves the ability to follow written examples.

MAIL SORTING BY ZIP CODE - Measures the ability to sort mail according to number. Incorporated in the ability to visualize numbers in a sequence.

MESLICK MECHANICAL COMPREHENSION - Measures the ability to assemble a small structure by following a series of diagrams. It also takes into account attention to small details.

NUT PACKING - Measures the ability to concentrate and to accurately count over a period of time.

ORDER PICKING - Measures the ability to prepare an order for shipping. Involved are verbal and numerical ability, spatial and form perception, clerical perception, finger & manual dexterity, and the ability to reach.

PAYROLL COMPUTATION - Measures the ability to do basic arithmetic functions in figuring out a payroll. It also measures the ability to follow written instructions and examples

RESISTOR READING - Designed to see if the client can learn to inspect, determine the values of, and accept or reject resistors based on tests and mathematic calculations. Involved are the ability to measure accurately, the ability to follow instructions, the ability to use and read a meter, and the ability to remember a series of steps.

RESTER MECHANICAL APTITUDE - Measures the ability to follow a diagram and to do simple mechanical problem solving.

STROMBERG DEXTERITY TEST - Eye - hand coordination as well as arm - hand dexterity.

TYPING - This is a simple test for speed and accuracy; first on straight typing and then on a simple business letter.

VISUAL PERSUIT - Measures the ability to do wiring according to a diagram.

V G R S ASSEMBLY - Measures the ability to learn a manual assembly task and perform it under timed conditions.

WASHER THREADING - Measures the ability to do accurate measurement over a period of time. There is also some finger dexterity involved in this task.

FISH LAMP ASSEMBLY - Measures the client's ability to learn and perform a manual assembly task using three hand tools.

SHIPPING & RECEIVING FREIGHT HANDLING - Assesses a client's ability to route packages and mail for shipment and to determine their costs.

VALPAR COMPONENT WORK SAMPLE SYSTEM

Valpar Component Work Sample 1, Small Tools (Mechanical) - measures a person's understanding of and ability to work with small tools. The design of the sample forces the client to work in difficult physical positions using his fingers and hands in a very small space with the actual work often being blocked from the client's vision.

Valpar Component Work Sample 2, Size Discrimination - measures a person's ability to perform work tasks requiring visual size discrimination.

Valpar Component Work Sample 3, Numerical Sorting - measures a person's ability to perform work tasks requiring the use of numbers and numerical series.

Valpar Component Work Sample 4, Upper Extremity Range of Motion - measures a person's upper extremity range of motion, including the shoulder, upper arm, forearm, elbow, wrist, and hand. The work sample is designed to give the evaluator an actuarial level of the client's performance, and to provide the evaluator with insight into related factors as neck and back fatique, finger dexterity and finger tactile sense.

Valpar Component Work Sample 5, Clerical Comprehension and Aptitude - measures a person's ability to perform entry level clerical tasks. Incorporated within this sample is a typing aptitude, bookkeeping, alphabetical filing, mail sorting, and telephone answering test.

Valpar Component Work Sample 6, Independent Problem Solving - measures a person's ability to perform work tasks requiring the visual comparison and proper selection of a series of abstract designs. The purpose of the sample is to give a measure of a person's basic independent problem solving ability.

Valpar Component Work Sample 7, Multi-Level Sorting - measures a person's ability to make decisions while performing work tasks requiring physical manipulation and visual discrimination of colors, color-numbers, color-letter and a combination of color-letter-number. The work sample permits the evaluator to establish a distinct level of individual decision-making ability.

Valpar Component Work Sample 8, Simulated Assembly - measures a person's ability to work at an assembly task requiring repetitive physical manipulation and evaluate a person's bilateral use of upper extremities. The work sample is characteristic of conveyor-assembly jobs in which material moves toward and away from workers on the assembly line.

Valpar Component Work Sample 9, Whole Body Range of Motion - measures the agility of a person's gross body movements of the trunk, arms, hands, legs and fingers as they relate to the functional ability to perform job tasks. The work sample is designed to give the evaluator an actuarial level of the client's physical agility, and to provide the evaluator with insight into the relationship of gross body movement to other "finer" manual dexterities in many differing work situations.

Valpar Component Work Sample 10, Tri-Level Measurement - measures a person's ability to perform very simple to very precise inspection and measurement tasks. The sample is designed so that the client is forced to make decisions which increase in their level of difficulty in order to determine if specially lathed, machined parts fit specific tolerances.

Valpar Component Work Sample 11, Eye-Hand-Foot Coordination - measures a person's ability to use his/her eyes, hands and feet simultaneously and in a coordinated manner.

Valpar Component Work Sample 12, Soldering and Inspection (Electronic) - measures a person's ability to acquire and apply the basic skills necessary to perform soldering tasks at varying levels of difficulty. The work sample was designed to apply itself to entry level worker requirements in various industries.

SINGER UNITS

Basic Tools - the client uses a variety of hand tools to fabricate a ring from aluminum bar stock. This work sample tests for medium finger dexterity, manual dexterity, eye-hand coordination, the use of hand tools, measuring ability, form perception, craftsmanship and care in handling.

Plumbing and Pipfitting - the client makes three 6 inch pipe nipples. He is required to measure, cut, ream, file and then thread the pipe. The sample tests for manual dexterity, bi-manual coordination, the use of hand tools, care in handling and judgement.

Refrigeration, Heating and Air Conditioning

This work sample has the client make a tubing frame. He is required to cut and flare copper tubing and then assemble the pieces into a frame using elbows, unions and a tee. Among the skills and abilities tested are manual dexterity, eye-hand coordination, form perception, care in handling and frustration tolerance.

Engine Service

In this work sample the client disassembles a small engine, checks and sets the points and plugs and then reassembles it. Among the observable skills are eye-hand coordination, manual dexterity, measuring ability, form perception, safety consciousness, care in handling, and performance with repetition.

Medical Service

This work sample includes a number of tasks. The client is exposed to bandaging; taking and recording temperature, pulse and respiration; measuring and recording liquid intake and output; and testing for diabetic urine. The observable skills and abilities include medium finger dexterity, manual dexterity, numerical ability, measuring ability, color discrimination, care in handling and performance with repetition.

Appendix C

Brochure and Brief Description of

HSA Work Evaluation Program

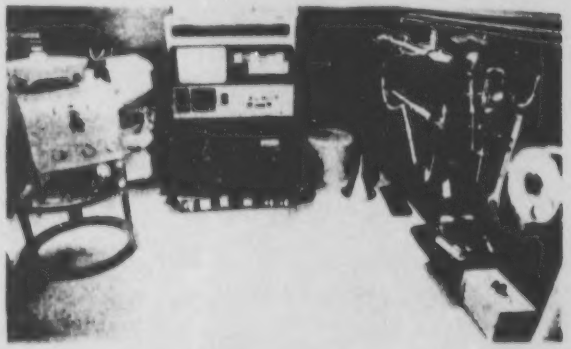
The Need:

The Work Evaluation Unit was established in order to meet a need within the community for a single source to provide a comprehensive real world oriented assessment of the rehabilitation client. The program assesses the client's potentials, interests, and capacities for work as well as activities necessary for daily living. The program was developed in response to rehabilitation practitioners' expressed needs.

The Program:

The Work Evaluation Unit offers a two week evaluation program of vocational exploration and work evaluation. The three basic components of the program are; Work Samples, Aptitude, Achievement, and Interests, tests, and a Job Search Clinic.

Work Samples are a mock-up of a job, a part of a job, or a simulation of tasks required of a job. Work Samples drawn from industry and standardized for time and quality expectations provide an accurate assessment of skills and aptitudes. A great deal of emphasis is placed on the use of Work Samples. They are reality based situations which give the client the opportunity to realistically learn about the world of work as well as determine the relationship of his occupational assets and deficits to the work world. Two national batteries are presently used in the Work Evaluation Unit, The Singer Graflex System and



The Jewish Employment Vocational System. The information gained through the Work Sample Batteries combined with the information gained through aptitude and achievement tests yield an accurate picture of the worker.

The Job Search Clinic is an approach to teaching clients to sell themselves. The clinic, run in connection with the evaluation, consists of five sessions of one to one and a half hours each. During the sessions a variety of topics are covered oriented around helping the client prepare for employment. Topics covered include: Sources Of Job Information, How To Fill Out Application Forms, Selling Your Skills, Preparing For The Job Interview, How To Handle Problems Encountered At Work, and Relations With Your Employer.

An in-depth evaluation report containing recommendations and results of the work evaluation will be sent to the referral source within two weeks after the evaluation has been completed. Staffings will be conducted on individual clients during the second week of the evaluation.

Clients are ordinarily involved in the program from ten o'clock a.m. to three-thirty p.m. Monday through Thursday and ten to twelve-thirty on Friday for two weeks. Shorter evaluations for specific purposes can be arranged upon consultation with the program director.

The Work Evaluation Unit is located in the Bard Building on the grounds of General Hospital. This location enables access to many specialized services provided through the Health Services Agency to enrich the client's experience. Physicians, psychiatrists, psychologists, social workers, occupational therapists, speech therapists, and physical therapists may be called upon as needed to augment services provided through the Unit.

Additional information can be obtained by calling (805) 648-6181, Extension 3137.

Mr. Terry B. Dinneen, M. S. Ed.
Work Evaluation Supervisor

THE PROGRAM IS ALSO AVAILABLE IN SPANISH

HOSP 125 (9 74)

County of Ventura

HEALTH SERVICES AGENCY

Work Evaluation Services

3291 Loma Vista Road
Ventura, CA 93003

Terry B. Dinneen, M. S. Ed.
Work Evaluation Supervisor

WORK EVALUATION SERVICES

Appendix D

The Career Planning Inventory
(CPI)

Test and Explanation

Career Planning Inventory

Ventura County
Regional Occupational Program

COUNTY OFFICE BUILDING, VENTURA, CALIFORNIA 93001

9/75

105

THIS IS A QUESTIONNAIRE—IT IS NOT A TEST

PLEASE DO NOT MARK ON THIS BOOKLET

The following questions are about your educational and career plans. Each question is important. Your answers will be used to help you clarify your educational and career goals, and to provide you with information about occupations in which you express an interest.

INSTRUCTIONS:

1. Read each question carefully and answer it as best you can.
2. Mark all answers on your answer card, using the special pencil.
3. Erase completely any stray marks or answers you wish to change.
4. Print your name, address, and zip code at the top of the answer card if not already printed.
5. Fill in your sex and grade at the left side of the answer card.

A. Which of the following statements best describes my present choice of classes? I have chosen as many classes as possible that relate to:

select 1

1. Receiving a ***general education.*** I am not trying to specialize in any area at this time.
2. ***Business,*** office work, and sales.
3. ***Agriculture,*** such as ornamental horticulture, livestock management, or crop management.
4. ***Fine arts,*** such as drawing, drama, and music.
5. Working in a ***trade*** or ***industry,*** such as auto mechanics, drafting, electronics, graphic arts, metal, or wood shop.
6. ***Home Economics,*** such as clothing, foods, child care, and home management.
7. Attending college (***college-prep*** classes).
8. ***None*** of the above statements best describe my present choice of classes.

B. When I consider my educational and career plans, how sure am I of my present choice of classes?

1. Very sure. It is exactly what I want.
2. Somewhat sure. I think it is what I want.
3. Doubtful. I am not too sure it is what I want.
4. I realize now I am in the wrong course of study.

C. TWO of the following types of work which are of most interest to me at this time are:

select 2

1. Creative work involving design, color, and materials; or work in the performing arts, such as music, drama. **(Artistic)**
2. Office work involving specific tasks requiring accuracy, such as typing, filing, keeping records and accounts. **(Clerical)**
3. Work involving mathematics or numbers. **(Computational)**
4. Work involving health care of people or animals. **(Health)**
5. Work involving reading and writing. **(Literary)**
6. Work involving machines and tools. **(Mechanical)**
7. Work that keeps you outside most of the time in all kinds of weather. **(Outdoor)**
8. Work that involves meeting and dealing with people, sales, or convincing others of a point of view. **(Persuasive)**
9. Work involving discovery, understanding, and problem solving in nature and the physical world. **(Scientific)**
10. Work involving helping other people. **(Social Service)**

D. How sure am I that my responses to question "C" really are my strongest interests?

select 1

1. Certain. My career interests are very firm.
2. Fairly sure. My career interests are somewhat clear.
3. A little uncertain. My career interests are not too clear.
4. Very uncertain. My career interests are not clear at all.

E. TWO of my strongest aptitudes or talents are:

select 2

1. Ability to "catch on" or understand instructions—closely related to doing well in school. **(General Learning)**
2. Ability to understand the meaning of words and to use them effectively. **(Verbal)**
3. Ability to work quickly and accurately with arithmetic problems. **(Numerical)**
4. Ability to picture something in my mind from a drawing, to see how the parts of things will fit together, and how the complete object will look. **(Spatial)**
5. Ability to see important details and differences of objects. **(Form Perception)**
6. Ability to pick out and copy letter and number combinations quickly and accurately. **(Clerical)**
7. Ability to coordinate eyes and hands to make precise hand movements with speed. **(Eye-Hand Coordination)**
8. Ability to work with small objects rapidly. **(Finger Dexterity)**
9. Ability to work with my hands easily and skillfully. **(Manual Dexterity)**

F. How sure am I that my response to question "E" really are my strongest aptitudes?

1. Certain
2. Fairly sure
3. A little uncertain
4. Very uncertain

G. SELECT FIVE job characteristics that are most important to you. I would like a career:

1. Where I have a high level of responsibility and make key decisions involving property, finances, or human safety and welfare.
2. Where I direct activities of others and have supervisory responsibilities.
3. Where I work under close supervision and my job performance and work standards are controlled by a supervisor.
4. Where my work involves performing the same thing time after time — doing repetitious work.
5. Where I compete with others for advancement and recognition.
6. Where I work with details continually, such as numbers, written materials, or technical data.
7. Where I see the physical results of my work; I see a product of my work.
8. Where I have freedom to use my own ideas — have an opportunity for self-expression.
9. Where I help people.
10. Where I work independently — where I use my initiative, self-discipline, and ability to organize.
11. Where I work as a part of a team interacting with fellow employees in performing my duties.
12. Where my work involves a lot of lifting, standing, and walking — requires physical stamina.
13. Where my job involves overtime or shift work — work hours other than normal daytime shifts.
14. Where I work with ideas; I use my intellect to solve problems.
15. Where I work with people and must be able to get along with others.
16. Where I work with things and must be able to work well with my hands.
17. Where I work at one place most of the time.
18. In which jobs are widely scattered in most areas of the United States.
19. Where I influence or motivate others.

H. Based upon facts I have now, my plan for the future is:

select 1

1. To graduate from high school and go right to work with no further education or training.
2. To join the military service.
3. To enter an apprenticeship program (formalized on-the-job training program usually associated with a union).
4. To get further training at a trade, technical, or business school.
5. To complete a community college program involving two years of training or less.
6. To start at a community college and then transfer to a four-year college.
7. To go right to a four-year college or university.
8. To attend more than four years of college.

I. Is there any reason why you may not be able to graduate from high school?

1. Yes 2. No

J. I wish to talk to a counselor about:

(SELECT AS MANY AS APPLY)

1. High school education requirements.
2. Trade school, community college, or technical school training opportunities.
3. Four-year college entrance requirements.
4. Scholarships or other financial aids to attend a private school, community or four-year college.
5. I do not wish to talk to a counselor about any of the above.

K. I estimate my grades for the last two years to be:

1. Mostly A's.
2. Mostly A's and B's.
3. Mostly B's.
4. Mostly B's and C's.
5. Mostly C's.
6. Mostly C's and D's.
7. Mostly D's.

L. Please note your need at this time for help with educational and career planning.

1. I need considerable help in figuring out what I am going to do.
2. I have some things planned but could use additional help.
3. I do not need additional help at this time as plans are fairly clear.

M. Do you have any physical handicaps that limit you in any way? (Do not include temporary injuries, dental braces, or glasses for minor visual corrections.)

1. Yes 2. No

N. Some students ride a bus or travel to training programs so they can take special courses. Are you willing to attend such classes (no more than 30 miles from your school) if the training you wish to take is not offered at your school?

1. Yes 2. No

Q. Most people have some idea of the occupation(s) they might like to enter. From the following list of occupations, make a first and second choice of occupations you might like to enter. Mark the three-digit number on your answer card as illustrated in the example to the right. If the occupation(s) in which you are interested are not listed, please try to pick a related occupation. You will receive information on the two occupations you pick. If you select "other," write the occupation you prefer on the back of the answer card.

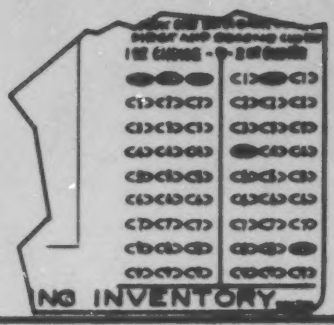
EXAMPLE:

First choice:

111 Accountant

Second choice:

418 Dental Assistant



BUSINESS AND COMMERCE

111 Accountant
116 Advertising Worker
121 Auto Parts Salesperson
122 Automobile Salesperson
126 Bank Teller
131 Bookkeeper
135 Cashier
143 Clerk Typist
145 Computer Operator
146 Computer Programmer
162 Hotel/Motel Clerk
166 Insurance Agent
168 Keypunch Operator
171 Manufacturers Sales Representative
175 Personnel Worker
177 Public Relations Worker
179 Purchasing Agent
181 Real Estate Salesperson
183 Receptionist
185 Restaurant Manager
187 Retail Sales Clerk
189 Secretary/Stenographer
193 Stockbroker
195 Systems Analyst
196 Telephone Operator

PUBLIC AND SOCIAL SERVICES

221 Beauty Operator/Cosmetologist
229 Clergy/Religious Worker
232 Cook/Chef
236 Counselor
241 Custodian
254 Firemen/Fire Fighter
267 Home Economist
269 Lawyer
274 Librarian
283 Military Service
285 Nursery School Teacher
287 Police Officer
292 Probation Officer/Parole Agent
294 Psychologist
296 Recreation Worker
313 Social Worker
317 Teacher
322 Waiter/Waitress

TRANSPORTATION AND RELATED

352 Air Traffic Controller
354 Airline Stewardess/Flight Attendant
358 Airplane Pilot
363 Bus Driver
378 Truck Driver

HEALTH SERVICES

418 Dental Assistant
419 Dental Hygienist
422 Dentist
436 Hospital Administrator
437 Hospital Attendant/Nurse Aide
443 Licensed Vocational Nurse
445 Medical Assistant
448 Medical Laboratory Worker
455 Occupational Therapist
462 Optometrist
468 Pharmacist
471 Physical Therapist
474 Physician/Doctor
486 Registered Nurse
497 Veterinarian
499 X-ray Technician

ENGINEERING, SCIENTIFIC, AND TECHNICAL

521 Biologist
533 Chemical Engineer
535 Chemist
538 Civil Engineer
542 Drafting Technician
545 Electrical Engineer
547 Electronic Technician
551 Engineering/Science Technician
563 Geologist
572 Mathematician
575 Mechanical Engineer
585 Oceanographer/Marine Biologist
596 Surveyor

COMMUNICATION, DESIGN, AND PERFORMING ARTS

612 Actor/Actress
615 Architect
628 Commercial Artist
632 Dancer
638 Fashion Designer
642 Floral Designer/Florist
652 Interior Designer/Decorator
654 Interpreter/Translator
664 Model
667 Musician/Music Teacher
674 Newspaper Reporter/Journalist
677 Photographer
681 Professional Athlete
684 Radio and Television Announcer
692 Technical Writer

CONSTRUCTION

714 Bricklayer
721 Carpenter
723 Cement Mason
729 Electrician
738 Heavy Equipment Operator
745 Painter/Paperhanger
749 Plumber

MECHANICAL AND REPAIR

761 Air Conditioning, Refrigeration, and Heating Mechanic
763 Aircraft Mechanic
765 Appliance Service Technician
767 Automobile Body Mechanic
769 Automobile Mechanic
774 Automobile Transmission Mechanic
789 Farm Equipment Mechanic
794 Industrial Machinery Mechanic
816 Motorcycle Mechanic
821 New Car Get Ready Worker
823 Service Station Attendant
832 Television and Radio Repair Technician

INDUSTRIAL PRODUCTION AND RELATED

844 Automobile Painter
864 Lithographic Printer
868 Machinist
877 Photographic Lab. Technician
899 Welder

AGRICULTURE AND CONSERVATION

914 Animal Keeper
916 Commercial Fisher
921 Crop and Fruit Grower
923 Dairy and Livestock Farmer
929 Fish and Game Warden
932 Forester
934 Forestry Technician
936 Gardener/Groundskeeper
938 Horse Trainer/Breeder
945 Nursery Worker/Landscaper
949 Poultry Rancher

998 Other (specify on back of answer card)

999 Undecided

CHECK YOUR ANSWER CARD FOR COMPLETENESS AND ACCURACY

INTRODUCTION

During each year since 1970, the Regional Occupational Program, Department of Occupational Education of the Ventura County Superintendent of Schools Office has administrated a fifteen-item Career Planning Inventory to secondary students. The annual inventory administration process is completed with the cooperation of local district and school personnel, the Ventura County Community College District, and the Ventura County Regional Educational Data Processing Center.

The original purpose for administering the inventory (often referred to as "the Questionnaire") was to obtain student interest data to be utilized for vocational training program planning and program recruitment. It was specifically designed to comply with the California State Department of Education's local district plan for vocational education requirements. The data obtained from the annual inventory administration process directly relate to the Population Needs Analysis, Student Recruitment, and Vocational guidance functions of that plan. Now after five years of development and implementation, the student data are computer processed so that students utilize the information to assist them in making meaningful career decisions.

Computer processing of the Career Planning Inventory provides a number of different reports which can also be used for many other purposes. The utilization of these reports pertains to such activities as:

1. Local district and/or regional program planning.

2. Articulated planning between a local district and other educational entities.

3. Identification of Students with special interest or needs.

4. Providing students with a stimulus to explore various career options.

5. Identification of students who have an expressed interest in a particular occupation.

Those computer reports include individual student profiles, school reports, and statistical reports. The other components of the system include the Career Planning Inventory (the cover of this report), Occupational Profiles, and Occupational Briefs. The complete system is transportable to other geographic areas outside of Ventura County. During the 1974-75 school year there were over 75,000 Career Planning Profiles administered in five other counties. For specific price and procedural information, please contact the Director of the Ventura County Regional Educational Data Processing Center, County Office Building, Ventura, California 93001

The next sections of this publication contain a detailed explanation for each of the various component parts of the system.

CAREER PLANNING INVENTORY

The original questionnaire was developed by the San Diego County Schools Office in 1968 and was released for use by other educational agencies in 1969. This instrument was first used by the Ventura County Superintendent of Schools Office in 1970, and it has been subsequently revised and used in each succeeding year.

The Career Planning Inventory (cover of this publication) is designed for administration by classroom teachers or counselors in 45 minutes or less. With one procter for each 35 students, it can be administrated in large groups. Each person administering the questionnaire is given written instructions for its administration.

The four-page Career Planning Inventory consists of 15 items, "A" through "O," each item requires from one to five responses by the student. The students use special pencils to mark their responses on a separate answer card. The data from the completed inventories are then analyzed by computer in the Ventura County Schools Regional Data Processing Center.

The results of Questions "A," "B," "C," "D," "E," "F," "G," "H," "K," "L," and "O" are covered in the Student Career Planning Profile (illustration 1 and 2). The results of Questions "B," "D," "F," "H," "I," "J," "K," "L," "M," "N," and "O" are reported in the School Summary Reports and the County Summary Reports (illustration 3 and 4).

STUDENT CAREER PLANNING PROFILE

The Student Career Planning Profile (illustration 2 and 3) summarizes each individual student's educational and career plans.

In addition to summarizing the student's educational and career plans, new information is provided for students by comparing interests, job characteristics, and educational plans chosen by each student with the interest areas, job characteristics and requirements, and educational requirements usually associated with each of 316 different occupations. The job characteristics and requirements (including educational requirements) usually associated with the occupations listed were identified in an article which appeared in the U.S. Department of Labor's Occupational Outlook Quarterly, Volume 15, Number 4, winter 1971.

Illustration 1 shows which questions on the first three pages (Questions "A" through "N") of the Educational and Career Planning Questionnaire produce the various responses recorded on the Student Career Planning Profile.

STUDENT CAREER PLANNING PROFILE

Illustration 2 shows that Question "O" on the fourth page of the Educational and Career Planning Questionnaire produces the students first and second occupational choices.

In parentheses to the right of the present occupational choices are a letter and two numbers. The letter indicates whether or not a student's post high school training plans (Question "H") are consistent with the amount of training necessary to enter the specified occupation. "Y" means "yes," the student's post high school training plans are consistent while "N" means "no," the student is planning to obtain either more or less education than is required for the occupation. The first number indicates how many of the two interest areas (Question "C") selected are included in the occupation and the second number (after the decimal) indicates how many of the five job characteristics and requirements (Question "G") selected are usually associated with the occupation. A plus (+) after the numbers indicates that the occupational outlook is favorable. A minus (-) indicates that the occupational outlook is not favorable and that there may be limited employment opportunities. If there are no pluses or minuses, the opportunities for employment in that occupation are in the average range.

Illustrations 1 and 2 also show in the lower right hand corner of the Student Career Planning Profile, a box with the heading OTHER OCCUPATIONS YOU MAY WISH TO EXPLORE. The box contains up to ten occupations which can be entered with the amount of education the student plans to obtain. Each occupation contains one or both of the interest areas selected by the student and at least three of the five job characteristics selected by the student. The numbers and any pluses or minuses that appear in parentheses to the right of the occupations listed can be interpreted in the same way as those to the right of the student's present occupational choices.

The occupations listed in this section of the Profile are ranked in priority order, first according to the number of interest area matches (first digit), secondly according to the number of job characteristics and requirement matches (second digit), and finally in order of employment potential.

If the student's choices result in no occupational matches, this is noted in the box in the lower right hand corner of the Student Career Planning Profile. If the student selects less than five job characteristics (Question "G"), this is noted in the box in the lower left hand corner of the Student Career Planning Profile. If any of the occupations listed in the lower right hand corner of the Student Career Planning Profile usually require more than four years of college, they are marked with an asterisk and an explanation is made in the box in the left corner portion of the Student Career Planning Profile.

IT SHOULD BE REMEMBERED THAT THE CAREER PLANNING INVENTORY IS NOT TO BE CONSIDERED AS A PREDICTIVE INSTRUMENT. THE LIST OF "OTHER OCCUPATIONS YOU MAY WISH TO EXPLORE" IS ONLY A PARTIAL LIST OF SOME OCCUPATIONS THAT ARE CONSISTENT WITH THE INTERESTS, EDUCATIONAL PLANS AND JOB CHARACTERISTICS WHICH A STUDENT SELECTS ON THE CAREER PLANNING INVENTORY.

THESE TYPES OF WORK INTEREST ME

C.

TWO of the following types of work which are of most interest to me at this time are:

MY PRESENT COURSE OF STUDY

A.

The following courses of study are offered in most high schools. My present course of study is:

MY STRONGEST APTITUDES

E.

TWO of my strongest aptitudes or talents are:

MY FUTURE PLANS

H.

Based upon facts I have now, my plans for the future are:

COUNSELING ASSISTANCE

L.

Please note your need at this time for help with educational and career planning:

DESIRABLE JOB CHARACTERISTICS

G.

I would like a career with the following job characteristics: (circle FIVE of those you would like)

ILLUS. 1

STUDENT CAREER PLANNING PROFILE

SUZANNE SMITH — 10 — FEMALE — HUGH HIGH SCHOOL — OXNARD — JONES

445 SPACE AGE — MODERN CIT. — CALIF. 93066 — 805 429 8705 — 07-24-73

MY COURSE OF STUDY IS COMBINATION OF TWO OR MORE. I AM NOT TOO SURE IT IS WHAT I WANT.

LITERARY AND SOCIAL SERVICE TYPES OF WORK APPEAR TO BE OF MOST INTEREST TO ME

I AM PRETTY SURE OF THIS AT THIS TIME. I THINK GENERAL LEARNING AND FORM PERCEPTION ARE MY

STRONGEST APTITUDES. I AM PRETTY SURE ABOUT MY APTITUDES. I ESTIMATE MY GRADES TO BE MOSTLY B's

I PLAN TO GO RIGHT TO A FOUR YEAR COLLEGE OR UNIVERSITY.

I NEED ADDITIONAL HELP WITH EDUCATIONAL AND CAREER PLANNING.

* INDICATES AN OCCUPATION REQUIRING MORE THAN 4 YEARS OF COLLEGE

(SEE BOX IN LOWER RIGHT HAND CORNER)

MY PRESENT OCCUPATIONAL CHOICES ARE

(1)	AIRLINE STEWARDESS	(N1.3)
(2)	SOCIAL WORKER	(V2.4+)

☐ UNDECIDED ☐ OTHER

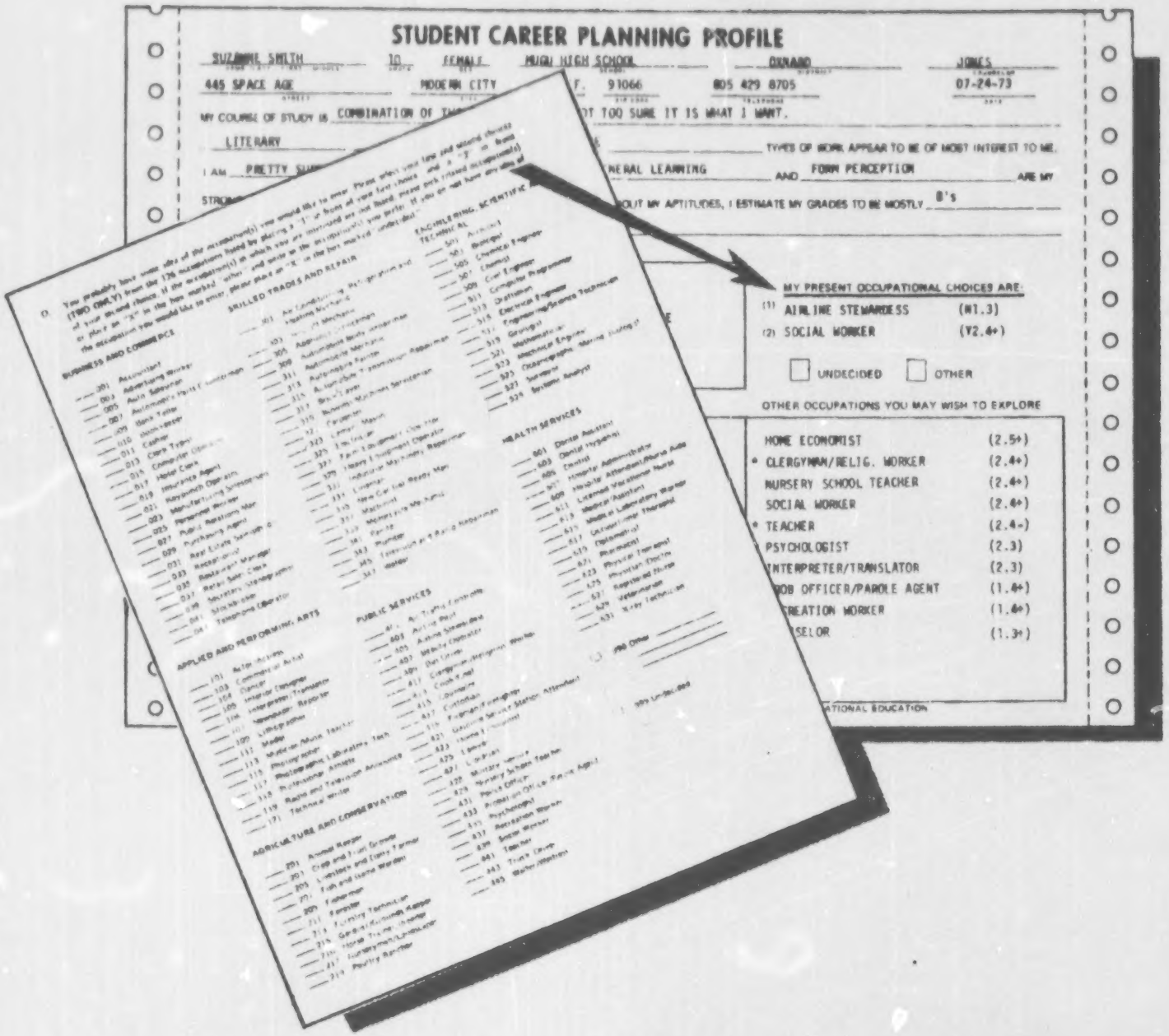
I WOULD LIKE A CAREER WHERE THE JOBS INVOLVE

- ☐ A HIGH LEVEL OF RESPONSIBILITY
- ☐ DIRECTING ACTIVITIES OF OTHERS
- ☐ WORKING UNDER CLOSE SUPERVISION
- ☐ PERFORMING THE SAME TASK ON A CONTINUING BASIS
- ☐ COMPETING WITH OTHERS FOR RECOGNITION AND ADVANCEMENT
- ☐ WORKING WITH DETAILS NUMBERS WRITTEN MATERIALS OR TECHNICAL DATA
- ☐ SEEING THE PHYSICAL RESULTS OF WORK
- X FREEDOM TO USE ONE'S OWN IDEAS
- X HELPING PEOPLE
- ☐ WORKING INDEPENDENTLY WITH INITIATIVE AND SELF DISCIPLINE
- ☐ WORKING AS PART OF A TEAM
- ☐ WORK REQUIRING PHYSICAL STRENGTH AND ENDURANCE
- ☐ OVERTIME WORK OR OTHER THAN NORMAL HOURS
- ☐ WORKING WITH IDEAS TO SOLVE PROBLEMS
- X ABILITY TO GET ALONG WITH OTHERS
- ☐ WORKING WITH THINGS USING MANUAL SKILLS
- ☐ WORKING AT ONE PLACE CONFINED TO WORK AREA
- X MANY LOCATIONS OF EMPLOYMENT
- X MOTIVATING AND INFLUENCING OTHERS

OTHER OCCUPATIONS YOU MAY WISH TO EXPLORE

HOME ECONOMIST	(2.5+)
* CLERGYMAN/RELIG. WORKER	(2.4+)
NURSERY SCHOOL TEACHER	(2.4+)
SOCIAL WORKER	(2.4+)
* TEACHER	(2.4-)
* PSYCHOLOGIST	(2.3)
INTERPRETER/TRANSLATOR	(2.3)
PROB OFFICER/PAROLE AGENT	(1.4+)
RECREATION WORKER	(1.4+)
* COUNSELOR	(1.3+)

VENTURA COUNTY SUPERINTENDENT OF SCHOOLS OFFICE ******* DEPARTMENT OF OCCUPATIONAL EDUCATION



STUDENT CAREER PLANNING PROFILE

SUZANNE SMITH — 10 — FEMALE — MUGU HIGH SCHOOL — OXNARD — JONES

445 SPACE AGE — MODERN CITY — F. — 91066 — 805 429 8705 — 07-24-73

MY COURSE OF STUDY IS COMBINATION OF TH... OT TOO SURE IT IS WHAT I WANT.

LITERARY ... TYPES OF WORK APPEAR TO BE OF MOST INTEREST TO ME.

I AM PRETTY SU... NERAL LEARNING AND FORM PERCEPTION ARE MY

STRO... OUT MY APTITUDES, I ESTIMATE MY GRADES TO BE MOSTLY B's

MY PRESENT OCCUPATIONAL CHOICES ARE:

(1) AIRLINE STEWARDESS (W1.3)

(2) SOCIAL WORKER (V2.4+)

☐ UNDECIDED ☐ OTHER

OTHER OCCUPATIONS YOU MAY WISH TO EXPLORE

HOME ECONOMIST	(2.5+)
* CLERGYMAN/RELIG. WORKER	(2.4+)
NURSERY SCHOOL TEACHER	(2.4+)
SOCIAL WORKER	(2.4+)
* TEACHER	(2.4-)
PSYCHOLOGIST	(2.3)
INTERPRETER/TRANSLATOR	(2.3)
OB OFFICER/PAROLE AGENT	(1.4+)
REATION WORKER	(1.4+)
SELOR	(1.3+)

ATIONAL EDUCATION

BUSINESS AND COMMERCE

SKILLED TRADES AND REPAIR

ENGINEERING, SCIENTIFIC, TECHNICAL

HEALTH SERVICES

APPLIED AND PERFORMING ARTS

PUBLIC SERVICES

AGRICULTURE AND CONSERVATION

113

ILLUS. 2

OCCUPATIONAL PROFILE

Profiles have been developed for each 125 different occupations. Each occupational profile contains a brief description of the occupation, the training usually required for entry into the occupation, and the employment prospects, including the Bureau of Labor Statistics estimates of the nation-wide employment in 1972 and the average annual nation-wide job openings to 1980. Local employment estimates are provided when available.

The Occupational Profile also contains the ten interest areas, nine aptitudes, and 26 job characteristics and requirements listed in Questions "C," "E," and "G," respectively, of the Career Planning Inventory. A brief definition of each item is included. The interest areas, aptitudes, and job characteristics and requirements usually associated with the occupation are clearly indicated. Additionally, five related careers are also listed.

SCHOOL SUMMARY REPORTS

The School Summary Reports are derived from student responses to the Career Planning Inventory. The computer is programmed to prepare 21 different types of reports compiled from the student responses. Illustration 3 is an example of one type of report. The title block of each report contains the student grade level, the letter of the question, and the question response number. The report title is para-phrased from the question on which it is based.

The body of each report contains an alphabetical listing of each student's name who responded to that particular question by selecting the indicated response. A statistical summary is printed by the computer in the lower left hand corner of each report. It indicates the total number of students who took the questionnaire, the number of students who selected the specified response and a percentage factor.

SCHOOL SUMMARY REPORTS

This is a list of the various report titles, the question letter designated and the response numbers.

Summary Report Title	Question and Response
1. Students Doubtful of Their Course of Study	B-3
2. Students Who Feel They Are in the Wrong Course of Study	B-4
3. Students Uncertain or Very Uncertain of Their Interests	D3-4
4. Students Uncertain or Very Uncertain of Their Aptitudes	F3-4
5 Students Who Plan to go to Work After High School with no Further Education	H-1
6. Students Who Plan to Enter Military Service	H-2
7. Students Who Plan to Enter an Apprenticeship Program (also matched with their first and second choice of an occupation)	H-3
8. Students Who Plan to go to a Trade or Business School	H-4
9. Students Who Plan to Complete a Community College Program	H-5
10. Students Who Plan to attend a Four Year College/University (also matched with type of college plan, estimate of grades and where available cummulative GPA)	H-6, 7, & 8
11. Students Indicating They May Not Graduate	I-1
12. Students Wishing to Talk to a Counselor about High School Education	J-1
13. Students Wishing to Talk to a Counselor about Post High School Technical Training	J-2
14. Students Wishing to Talk to a Counselor about Four Year College Entrance Requirements	J-3
15. Students Wishing to Talk to a Counselor about Scholarships or other Financial Aids (matched with their future plans)	J4-H
16. Students Needing Considerable Help in Career Planning	L-1
17. Students Needing Additional Help in Career Planning	L-2
18. Students Indicating Physical Handicaps	M-1
19. Students (listed by sex) indicating their first and Second Choice of a Particular Occupation	111-949
20. Students Who Indicated an Occupational Choice Other Than the Ones Listed	998
21. Students Who Are Undecided as to an Occupational Choice	999

A brief study of the Career Planning Inventory will reveal the relationship of these titles and responses to the actual question listed in the Questionnaire.

HIGH SCHOOL QUESTIONNAIRE RESULTS

VENTURA HIGH

PAGE 110
GRADE 10

DATE 07-24-73
56-735-022

VOCATIONAL PLANNING QUESTIONNAIRE REPORT 0211M
MALE STUDENTS SELECTING COURSES AS THEIR FIRST OR SECOND CAREER CHOICE

STUDENT NAME	BUS	STUDENT NAME	BUS
FIRST CHOICE			
ABBEY DAVID R	YES (N1.2-)	BOWDEN DOUG R	YES (N2.0-)
CRAWFORD SCOTT M	YES (N2.2-)	CURTIS JIMMIE DALE	YES (N1.0-)
DEAN JAMES R	YES (N1.2-)	FRANK STEPHEN E	YES (N1.1-)
GRUELL RON W	YES (N2.2-)	HENDERSON DAVID C	NO (N1.3-)
LITMATH KEITH A	NO (N1.1-)	LONG ROBERT J	YES (N1.3-)
MORNINGSTAR GARY R	YES (N1.2-)	SLOAT PETER C	NO (N1.3-)
WILSON TED A	NO (N1.4-)		
SECOND CHOICE			
BUNN LARRY L	YES (N1.0-)	CHEVERIE MICHAEL J	YES (N0.0-)
EVANS DENNIS C	YES (N1.2-)	FONG DENNIS J	YES (N1.0-)
FROEBE MONTY V	NO (N2.3-)	GRAHAM STEVE	NO (N1.3-)
KOENIG KURT V	YES (N2.2-)	MILLER ARTHUR C	YES (N0.0-)
MUNOZ RICHARD R	YES (N1.0-)	MURPHY RONALD M	YES (N2.2-)
OLSEN DEGAN S	NO (N2.3-)	RALSTON REED N	NO (N1.2-)
WILLIAMS TIM R	YES (N1.1-)		
TOTAL REPORTED	26		
TOTAL STUDENTS	265		
PERCENTAGE	9.81%		

ILLUS. 3

COUNTY SUMMARY REPORTS

Essentially, the County Summary Reports are computer printed statistical review of each of the school reports. The title block contains the same basic information as the School Reports. The left hand column of the report identified the district and the name of each school within that district. The next three columns list the number of students who selected the particular question response indicated, the total number of students who took the questionnaire and a percentage factor.

The bottom line of each report indicates the County totals for each column. It is possible to obtain from these reports data pertaining to a particular school or a district and compare these results to the County percentage factors.

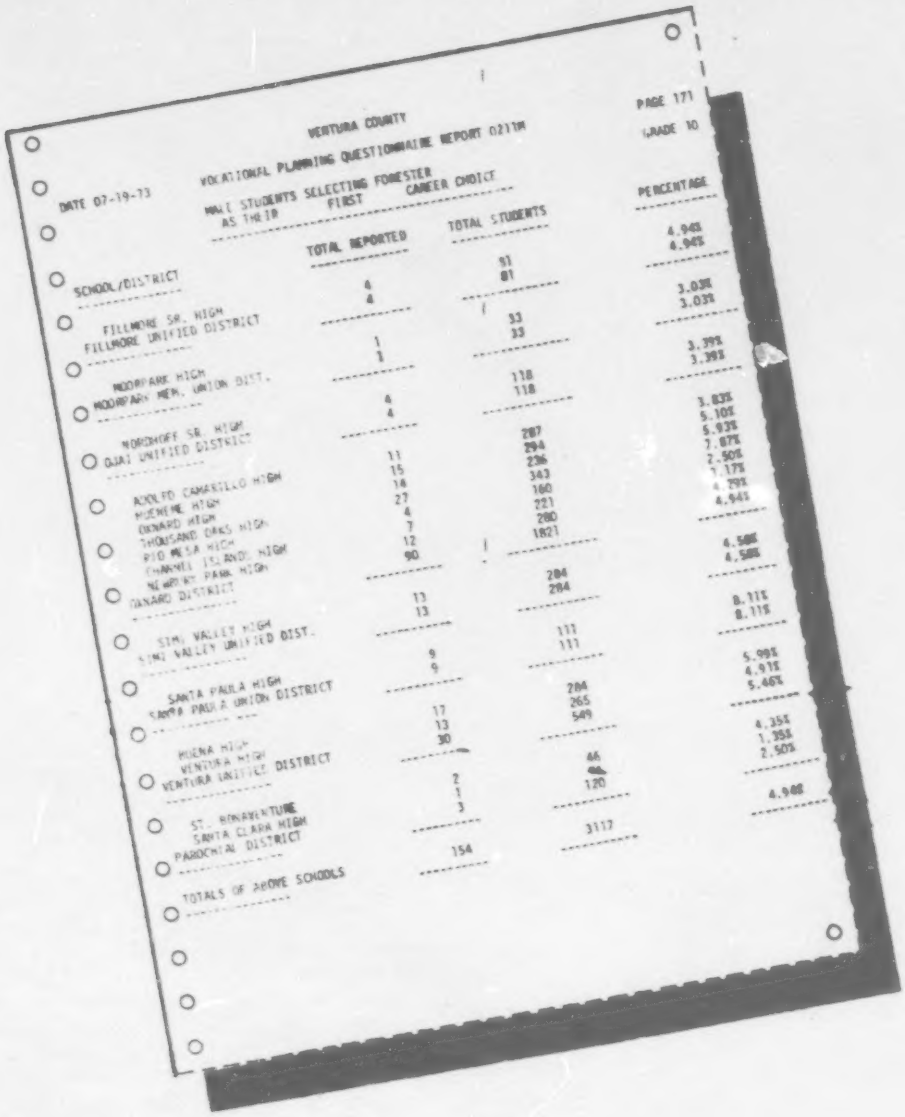
There is one additional report prepared in the County format but not reported as a separate item in the School Summary Reports. This report is based on Question "N" and pertains to the student's willingness to be bussed to a site other than his school in order to receive occupational training. The response to this question is utilized in the School Report titled "Students Who Indicated An Occupational Choice Under the Column Heading 'Bus'." (Illustration 4).

SPECIAL REPORTS

Because of the creative design of the computer programs utilized by this system, there are other types of reports or services which may be obtained by special request. In addition to address labels, perhaps the most useful report in this type is the "Special Trait Selector."

By specifying the appropriate work traits (Question C) and the job characteristics (Question G) it is possible to identify students which match the requirements of a particular job or training program. This report is particularly valuable for recruiting student into new or unusual programs. Utilizing a report of this nature, situations such as selecting a limited number of students for job opportunities or field trips can be resolved by school officials.

VENTURA COUNTY SUMMARY



VENTURA COUNTY

VOCATIONAL PLANNING QUESTIONNAIRE REPORT 0211M

PAGE 171

DATE 07-19-73

GRADE 10

MALE STUDENTS SELECTING FORESTER AS THEIR FIRST CAREER CHOICE

SCHOOL/DISTRICT	TOTAL REPORTED	TOTAL STUDENTS	PERCENTAGE
FILLMORE SR. HIGH	4	91	4.94%
FILLMORE UNIFIED DISTRICT	4	81	4.94%
MOORPARK HIGH	1	33	3.03%
MOORPARK MEM. UNION DIST.	1	33	3.03%
NORDHOFF SR. HIGH	4	118	3.39%
OJAI UNIFIED DISTRICT	4	118	3.39%
ADOLFO CAMARILLO HIGH	11	287	3.83%
HUENEME HIGH	15	294	5.10%
OXNARD HIGH	14	236	5.93%
THOUSAND OAKS HIGH	27	343	7.87%
RIO MESA HIGH	4	160	2.50%
CHANNEL ISLANDS HIGH	7	221	3.17%
NEWBURY PARK HIGH	12	280	4.29%
OXNARD DISTRICT	90	1821	4.94%
SIMI VALLEY HIGH	13	284	4.58%
SIMI VALLEY UNIFIED DIST.	13	284	4.58%
SANTA PAULA HIGH	9	111	8.11%
SANTA PAULA UNION DISTRICT	9	111	8.11%
BUENA HIGH	17	284	5.99%
VENTURA HIGH	13	265	4.91%
VENTURA UNIFIED DISTRICT	30	549	5.46%
ST. BONAVENTURE	2	46	4.35%
SANTA CLARA HIGH	1	40	1.35%
PAROCHIAL DISTRICT	3	120	2.50%
TOTALS OF ABOVE SCHOOLS	154	3117	4.94%

ILLUS. 4

USES OF THE SYSTEM

Each student in Ventura County who completes a Career Planning Inventory receives a Student Career Planning Profile (Illustrations 3 and 4), an Occupational Profile on each of his two present occupational choices (Question "0"), and a cover letter explaining how to interpret the enclosed materials.

In the cover letter, the student is encouraged to compare his choice of interests, aptitudes, training and job characteristics and requirements summarized on the Student Career Planning Profile (Illustrations 1 and 2) with the interests, aptitudes, training and job characteristics usually associated with each of his two occupational choices. The appropriate occupational profiles are included with the cover letter and the Student Career Planning Profile.

By utilizing the School Summary Reports and the Student Profiles, the Occupational Counselor can identify groups of students who have common interests or similar needs. This process facilitates small or large group counseling. The individual students with particular occupational counseling needs can also be identified.

The Occupational Interest Reports contained in the School Summary Reports facilitate matching student interest with such activities as career days or special speakers. These same reports have been utilized by work experience coordinators to aid in the selection of potential student job candidates when specific requests from community employers are received.

The vocational education teacher can also use the School Reports to identify those students who have a high interest in the particular occupation his program is designed to serve. This feature enables the teacher to recruit the identified students and thereby build the enrollment in his program.

The County Summary Reports, reflecting both numercial totals and percentages by school and by district, are beneficial tools for the vocational education planner. With these reports, he can quickly assess the number of potential students available for any program which is either presently operational or may be in the initial planning stages.

Appendix E

Project Developed Feedback Forms

1) Parent Feedback
2) Teacher Feedback
3) Student Feedback

PARENT FEEDBACK

Work Sampling for Handicapped Students

1. How effective do you think this program was in relation to:

   a. Your child's positive view of himself/herself?

   ☐ very effective ☐ somewhat effective

   ☐ slightly effective ☐ ineffective ☐ don't know

   b. Your child's awareness of his/her actual abilities?

   ☐ very effective ☐ somewhat effective

   ☐ slightly effective ☐ ineffective ☐ don't know

   c. Your child's awareness of different possible work areas in which he/she can be successfully involved?

   ☐ very effective ☐ somewhat effective

   ☐ slightly effective ☐ ineffective ☐ don't know

   d. Making the possibility of meaningful work more a reality for your child?

   ☐ very effective ☐ somewhat effective

   ☐ slightly effective ☐ ineffective ☐ don't know

2. How effective does your child think this program was?

   ☐ very effective ☐ somewhat effective

   ☐ slightly effective ☐ ineffective ☐ don't know

3. How informative was the initial program orientation for you?

   ☐ very informative ☐ somewhat informative

   ☐ slightly informative ☐ not informative ☐ didn't attend

4. How informative was the conference discussing the results of the evaluation?

   ☐ very informative ☐ somewhat informative

   ☐ slightly ☐ not informative ☐ didn't attend

5. Observations and comments (We would welcome any suggestions for improving the program, assuming that it will be possible to continue next year.)

TEACHER FEEDBACK

Work Sampling for Handicapped Students

Please comment on the following areas of the project:

1. Selection of students for Sampling -

2. Scheduling of students for Sampling -

3. In-service orientation (Mar. 5) -

4. ROP & County Hospital facilities -

5. In-service staffing -

6. Written Reports of results -

7. Debriefing of students -

122

(over)

8. Parent conferences -

9. Vocational Technicians -

10. Student benefits of program -

STUDENT FEEDBACK

Now that you have finished the work sampling and seen the results, we would like to know what you thought of the program. Please tell us honestly how you feel about it, and if you have any suggestions as to how it could be improved, include them under "Comments." Thank you for your time and patience. If we are able to continue next year, please come by and see us. We'd like to know how you're doing.

1. What did the work sampling tell you about yourself that you didn't already know?

2. What did you like and/or dislike about the work sampling?

3. Is there a better way to schedule the sampling? If so, choose one of the following, or give us your ideas:

   a) One week, four hours per day _____

   b) Two weeks, two hours per day _____

   c) Four weeks, one period per day _____

   d) After school _____

   e) Other _____

   _____

4. How do you plan to use what you have learned about yourself?

5. How could we improve the work sampling?

6. How else could we have been of help to you?

7. Comments: (use the back if you need more space)

BEST COPY AVAILABLE

Appendix F

Sample Copy of ROP Evaluation Report

CAREER EVALUATION PROGRAM
WEEKLY OBSERVATION RECORD

Name _____ Evaluator Carol Dinneen Date 3-30-76

Did the client show the following behavior during the week?

Yes	No			Comments:
X		1.	Attendance	
X		2.	Punctuality	
X		3.	Properly groomed and clean	
X		4.	Clear communication of needs and responses	
X		5.	Free of irritating mannerisms	
X		6.	Free of inappropriate behaviors	
	X	7.	Complaints of self-inadequacies	
	X	8.	Complaints of illness or disability	
	X	9.	Complaints about co-workers	
X		10.	Adequate work energy	
X		11.	Interacted with co-workers on breaks	
X		12.	Comfortable with supervision	

Yes	No			
X		1.	Ability to follow oral instructions	
	X	2.	Ability to follow written instructions	Needs help when math is involved.
X		3.	Ability to follow demonstrated instructions	
X		4.	Steadiness of work	
X		5.	Improvement of speed in repetition	
X		6.	Improvement of quality in repetition	
X		7.	Efficient organization of tools and supplies	
X		8.	Consistently high productivity level	
X		9.	Accepts unpleasant tasks	
X		10.	Ignores distractions	
X		11.	Requires only ordinary supervisory time	
X		12.	Self-starter	

Form 3

Client _____ Date 3-30-76

Evaluator Carol Dinneen

Tests Administered _____ Results _____

SRA Reading Index - Handled material through the sentence comprehension level. With no problem. Missed the proficiency level for paragraph comprehension by two points.

SRA Arithmetic Index - Handled addition, subtraction, multiplication and division of whole numbers with no problem. Unable to do fractions, decimals or percentages.

California Occupational Preference System - High interest areas were professional and skilled art. Skilled technology was also above average but considerably below the rating for art.

Work Samples Administered

Name of sample	Results (3-highest 1-lowest) Time	Quality
Visual Pursuit	3	3
Rester Mechanical Aptitude	2	
Meslick Mechanical Comprehension	2	1
Engine Service	3	3
Shipping and Freight Handling	3	2
Order Picking	3	1
Adding Machine	2	2
Mail Sorting	1	2
Medical Services	2	3
Crawford Small Tools Dexterity - Pins 25% Screws 40%		
Bennett Hand Tool Dexterity - 25%		
Upper Extremity Range of Motion - 85%		
Size Discrimination - assembly 33% disassembly 65%		
Simulated Assembly - 35%		
Eye-hand-foot Coordination - 80%		
Drafting - - - - - - - - - - - -	2	2
Small Tools - assembly 40% disassembly 1%		
Numerical Sorting - 6%		
Independent Problem Solving - 87%		

scores varied, but were generally in the average to above average range for both time and quality. There does not appear to be any particular pattern in the tasks which she dropped down.

listened carefully to directions and was generally able to proceed with out further help. The exceptions to this were on tasks where a number of steps were involved. She did need a verbal explanation of written material if math was involved. was able to read and work from diagrams.

Generally, work pace was steady and on the fast side. It slowed down on tasks where close attention to detail or written material was involved. Although her tested dexterity was below average, in practical application it proved to be more than adequate. demonstrated above average concentration and a high tolerance for frustration. While was able to concentrate on her own work, she was also observant of what went on around her. Because of this she needed only a minimal explanation on several of the work samples.

approach to tasks was organized and she knew how to break tasks down into separate steps. She tended to stick closely to demonstrated methods rather than modify them to any great degree.

Employability Assets:

1) Steady, fairly rapid work pace
2) Good concentration
3) Ability to organize her work
4) Ability to follow directions

Present Limitations:

1) Math skills somewhat low
2) Quality of work drops when close attention to numbers or detail is required.

Comments

was a willing worker and appeared to take the evaluation seriously.

March 30, 1976

SOME TENTATIVE OCCUPATIONAL GOALS

Airbrush Artist 970.281
Art Lay-Out Man (print.& pub.) 141.081
Cartoonist 141.081
Commercial Designer 142.081
Copy Camera Operator 979.381
Cosmetologist 332.271
Darkroom Technician 976.381
Decorator (any ind.) I 298.381
Display Artist 142.081
Floral Designer 142.081
Furniture Designer 142.081
Horse Breeder 413.181
Horse Trainer 153.228
Paste-Up Man 979.381
Sample Maker (jewelry) 142.381
Silk Screener 979.381
Veterinary-Hospital Attendant 356.874
Wild-Animal Trainer 159.228

The above occupations are consistent primarily with tested interests and secondarily with her aptitudes. Her two main interests were art and working with animals. Unfortunately we do not have work samples that test these aptitudes directly.

During the time spent in the Career Center, she talked primarily about entering the art field in some capacity. Most occupations that she was looking at require at least four years of college. There is a two year program in applied art at Moorpark College that she might wish to consider. This would train her for some entry level jobs in the art field.

If chooses to go the other way and follow up her interest in animals, Moorpark, again, has a course in wild animal training. We talked briefly about this and horse breeding and training. She also reviewed some information on the latter.

might want to consider both the R.O.P. classes in floral design and retail merchandising. Both of these relate to her artistic interests.

The following is a list of Worker Trait Groups consistent with tested aptitudes on work samples:

.380 Set-up machine operating
.381-.281 Craftsmanship and related work
.368 Information gathering, dispensing, verifying and related work
.488-.388 Computing and related recording
.588-.688 Routine checking and recording
.684-.487 Sorting, inspecting, measuring and related work

.782 Operating controlling
.878 Child and adult care
.883 Driving operating
.884 Manipulating

Carol Dinneen

Carol Dinneen
Occupational Counselor

Appendix G

Sample Copy of HSA Evaluation Report

PAGE 128 CONSISTING OF A WORK EVALUATION STAFFING REPORT WAS NOT REPRODUCIBLE AND WAS REMOVED FROM THIS DOCUMENT PRIOR TO ITS BEING SUBMITTED TO THE ERIC DOCUMENT REPRODUCTION SERVICE.

CAREER EVALUATION PROGRAM
WEEKLY OBSERVATION RECORD

Name _____ Evaluator Carol Dinneen Date 3-30-76

Did the client show the following behavior during the week?

Yes	No			Comments:
X		1.	Attendance	
X		2.	Punctuality	
X		3.	Properly groomed and clean	
X		4.	Clear communication of needs and responses	
X		5.	Free of irritating mannerisms	
X		6.	Free of inappropriate behaviors	
	X	7.	Complaints of self-inadequacies	
	X	8.	Complaints of illness or disability	
	X	9.	Complaints about co-workers	
X		10.	Adequate work energy	
X		11.	Interacted with co-workers on breaks	
X		12.	Comfortable with supervision	

Yes	No			
X		1.	Ability to follow oral instructions	
	X	2.	Ability to follow written instructions	Needs help when math is involved.
X		3.	Ability to follow demonstrated instructions	
X		4.	Steadiness of work	
X		5.	Improvement of speed in repetition	
X		6.	Improvement of quality in repetition	
X		7.	Efficient organization of tools and supplies	
X		8.	Consistently high productivity level	
X		9.	Accepts unpleasant tasks	
X		10.	Ignores distractions	
X		11.	Requires only ordinary supervisory time	
X		12.	Self-starter	

Form 3

WORK EVALUATION SUMMARY

Client _____ Date 3-30-76

Evaluator Carol Dinneen

Tests Administered **Results**

SRA Reading Index - Handled material through the sentence comprehension level. With no problem. Missed the proficiency level for paragraph comprehension by two points.

SRA Arithmetic Index - Handled addition, subtraction, multiplication and division of whole numbers with no problem. Unable to do fractions, decimals or percentages.

California Occupational Preference System - High interest areas were professional and skilled art. Skilled technology was also above average but considerably below the rating for art.

Work Samples Administered

Name of sample	Results (3-highest 1-lowest) Time	Quality
Visual Pursuit	3	3
Rester Mechanical Aptitude	2	
Meslick Mechanical Comprehension	2	1
Engine Service	3	3
Shipping and Freight Handling	3	2
Order Picking	3	1
Adding Machine	2	2
Mail Sorting	1	2
Medical Services	2	3
Crawford Small Tools Dexterity - Pins 25% Screws 40%		
Bennett Hand Tool Dexterity - 25%		
Upper Extremity Range of Motion - 85%		
Size Discrimination - assembly 33% disassembly 65%		
Simulated Assembly - 35%		
Eye-hand-foot Coordination - 80%		
Drafting - - - - - - - - - - -	2	2
Small Tools - assembly 40% disassembly 1%		
Numerical Sorting - 6%		
Independent Problem Solving - 87%		

OVERALL PERFORMANCE

scores varied, but were generally in the average to above average range for both time and quality. There does not appear to be any particular pattern in the tasks which she dropped down.

listened carefully to directions and was generally able to proceed with out further help. The exceptions to this were on tasks where a number of steps were involved. She did need a verbal explanation of written material if math was involved. was able to read and work from diagrams.

Generally, work pace was steady and on the fast side. It slowed down on tasks where close attention to detail or written material was involved. Although her tested dexterity was below average, in practical application it proved to be more than adequate. demonstrated above average concentration and a high tolerance for frustration. While was able to concentrate on her own work, she was also observant of what went on around her. Because of this she needed only a minimal explanation on several of the work samples.

approach to tasks was organized and she knew how to break tasks down into separate steps. She tended to stick closely to demonstrated methods rather than modify them to any great degree.

Employability Assets:

1) Steady, fairly rapid work pace
2) Good concentration
3) Ability to organize her work
4) Ability to follow directions

Present Limitations:

1) Math skills somewhat low
2) Quality of work drops when close attention to numbers or detail is required.

Comments

was a willing worker and appeared to take the evaluation seriously.

March 30, 1976

SOME TENTATIVE OCCUPATIONAL GOALS

Airbrush Artist 970.281
Art Lay-Out Man (print.& pub.) 141.081
Cartoonist 141.081
Commercial Designer 142.081
Copy Camera Operator 979.381
Cosmetologist 332.271
Darkroom Technician 976.381
Decorator (any ind.) I 298.381
Display Artist 142.081
Floral Designer 142.081
Furniture Designer 142.081
Horse Breeder 413.181
Horse Trainer 153.228
Paste-Up Man 979.381
Sample Maker (jewelry) 142.381
Silk Screener 979.381
Veterinary-Hospital Attendant 356.874
Wild-Animal Trainer 159.228

The above occupations are consistent primarily with tested interests and secondarily with her aptitudes. Her two main interests were art and working with animals. Unfortunately we do not have work samples that test these aptitudes directly.

During the time spent in the Career Center, she talked primarily about entering the art field in some capacity. Most occupations that she was looking at require at least four years of college. There is a two year program in applied art at Moorpark College that she might wish to consider. This would train her for some entry level jobs in the art field.

If chooses to go the other way and follow up her interest in animals, Moorpark, again, has a course in wild animal training. We talked briefly about this and horse breeding and training. She also reviewed some information on the latter.

might want to consider both the R.O.P. classes in floral design and retail merchandising. Both of these relate to her artistic interests.

The following is a list of Worker Trait Groups consistent with tested aptitudes on work samples:

.380 Set-up machine operating
.381-.281 Craftsmanship and related work
.368 Information gathering, dispensing, verifying and related work
.488-.388 Computing and related recording
.588-.688 Routine checking and recording
.684-.487 Sorting, inspecting, measuring and related work

.782 Operating controlling
.878 Child and adult care
.883 Driving operating
.884 Manipulating

Carol Dinneen

Carol Dinneen
Occupational Counselor

Appendix H

Regional Occupational Program Brochure

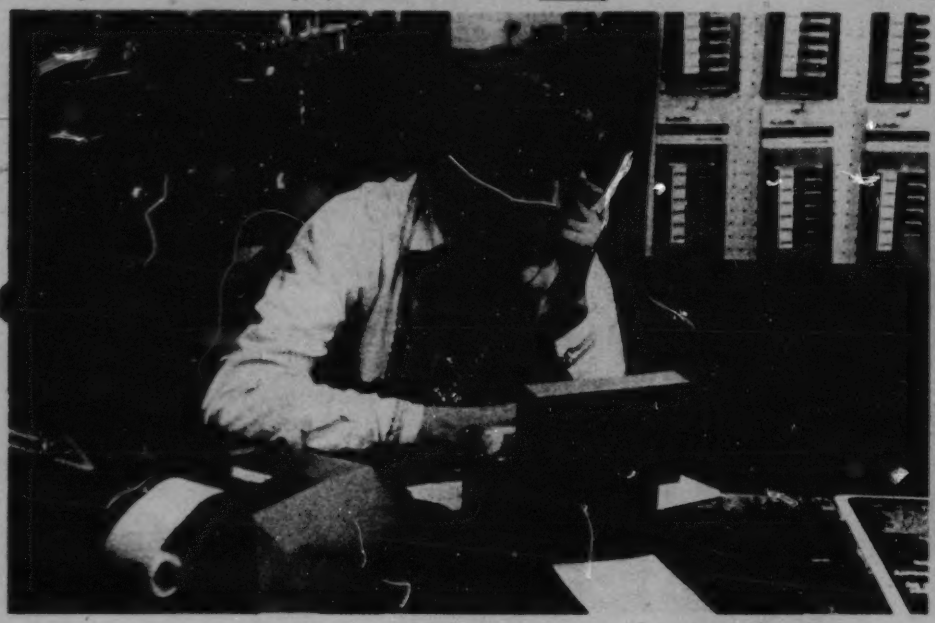
THE REGIONAL OCCUPATIONAL PROGRAM (R.O.P.)--

a cooperative effort of the Ventura County Superintendent of Schools Office, the various school districts, and the community colleges in the county — makes training available to students who want a marketable skill upon graduation. Training is cost-free to those who are eligible. The programs exist because employers in Ventura County need personnel with the skills being offered in the R.O.P. courses. Those students who develop the required skills and satisfactorily complete the training programs will be prepared to accept entry-level, full-time employment.

ROP

Courses:

AIR CONDITIONING/ HEATING/REFRIGERATION
MECHANICAL OCCUPATIONAL CLUSTER • FLORAL PRODUCT DESIGN
AUTO BODY REPAIR/AUTO REFINISHING
BANK TELLER/FINANCIAL OCCUPATIONS
AUTOMOTIVE SERVICE • MARKETING & DISTRIBUTIVE OCCUPATIONS • DENTAL ASSISTANT • PARK & CONSERVATION AIDE • HYDRAULICS/PNEUMATICS
RESTAURANT OCCUPATIONS
COMMUNITY BASED PROGRAMS



WHO ARE ELIGIBLE FOR TRAINING?

Seniors and some juniors in all Ventura County high schools. Seventeen-to-nineteen-year-old, out-of-school youths may also be eligible. Sophomores and freshmen plan ahead for an opportunity for hands-on training experience.

LENGTH OF TRAINING

Unless otherwise specified, classes meet two hours per day, five days a week, for two semesters. Most classes are during daylight hours.

CREDIT EARNED

Ten credits per semester are earned for most courses and may be applied toward fulfillment of requirements for high school graduation. Students generally enroll for four classes at their home school as well.

TRANSPORTATION

Bus transportation, from your high school to the training class and return, is available for most classes.

HOW TO ENROLL

Discuss the course with your parents (or guardian) and contact your high school counselor for enrollment information.

FOR MORE INFORMATION

Contact Mrs. Florine Matthews, Student Services Specialist, Regional Occupational Program, County Office Building, Ventura, California 93001, (805) 487-7711, ext. 4433.

Appendix I

"Job Survival Skills" Program Brochure

WHY HAVE IT?

Vocational trainees, students, and other clients with limited work experience often have difficulty adjusting to demands in the world of work. Education and vocational training can provide basic technical skills, but the client may lack interpersonal skills necessary to find a job and form satisfactory work relationships with supervisors and co-workers. The client also may be unaware of common employer expectations regarding personal appearance, attitude, and punctuality. Too frequently, the new employee who is unprepared for these realities is soon looking for another job.

WHEN & WHERE

The full program requires 25 hours of instructional time. A condensed program requiring a minimum of 12 hours will also be offered. Scheduling is flexible, with a minimum of two sessions per week recommended. Every effort will be made to hold the training at a time and place that will be most convenient for the group being served.

FOR MORE INFORMATION

Contact Mr. Tom Nichols
Job Survival Skills Facilitator
Regional Occupational Program
County Office Building
Ventura, CA 93001
(805) 487-7711, extension 4437

ROP
VENTURA COUNTY
Regional Occupational Program

VENTURA COUNTY
SUPERINTENDENT OF SCHOOLS OFFICE
James F. Cowan, Ed.D., Superintendent

WHAT

IS THE JOB SURVIVAL SKILLS PROGRAM?

141

THE JOB SURVIVAL SKILLS PROGRAM:

CE 009 634

The Job Survival Skills Program is designed to equip trainees and job seekers with information and abilities that are essential in finding and holding employment. Techniques of group interaction such as role playing and group discussion are used to achieve maximum participation and involvement by the trainees. Audio-visual materials are used to present information on critical areas and to stimulate further discussion and activities. Each trainee is given maximum opportunity to ask questions and work out individual problems.

1/4/8

AREAS COVERED INCLUDE:

- Personal Appearance
- Communication
- Job Application
- Resume
- Job Seeking
- Job Interview
- Work Relationship with Supervisor
- Work Relationships with Co-workers
- Individual Assessment

WHO NEEDS IT?

- Economically and/or culturally disadvantaged
- Trainees or students with no previous full-time work experience
- Clients with a sporadic work history
- Clients who have had difficulty holding jobs (For example, those who have quit jobs after a short period or have been fired)
- Recent high school dropouts
- Any others showing need or interest

SCHOOLS AND TRAINING AGENCIES THAT PREPARE PEOPLE FOR IMMEDIATE ENTRY INTO THE JOB MARKET WILL FIND THE PROGRAM INVALUABLE.

ACCESSION NUMBER: VT103500

PUBLICATION DATE: MAY76

TITLE: JOB SKILLS NEEDED IN THE AREA OF PLASTIC LENS FABRICATION. FINAL REPORT.

PERSONAL AUTHOR: SCHRADER, MARVIN A.; WOHLEVER, RICHARD

DESCRIPTOR: *JOB SKILLS; LABORATORY TECHNOLOGY; *SCHOOL SURVEYS; *JOB ANALYSIS; *TASK ANALYSIS; *TECHNICAL INSTITUTES

IDENTIFIER: *LABORATORY OPTICIANS; PLASTIC LENS FABRICATION

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 31P.

ABSTRACT: TO DETERMINE THE NEED FOR ADDING TRAINING IN PLASTIC LENS FABRICATION TO THE LABORATORY OPTICIAN PROGRAM AT LAKESHORE TECHNICAL INSTITUTE, A SURVEY WAS CONDUCTED OF OPTICAL LABORATORIES IN WISCONSIN AND PARTS OF MINNESOTA AND ILLINOIS. OF THE 35 LABORATORIES RESPONDING TO THE SURVEY, 28 REPORTED THAT PLASTIC LENS FABRICATION WAS BEING DONE. A JOB ANALYSIS INSTRUMENT WAS SENT TO THESE LABORATORIES, ASKING THEM TO RATE THE FREQUENCY AND IMPORTANCE OF TASKS PERFORMED BY THE LABORATORY OPTICIAN. BASED ON SURVEY RESULTS, IT WAS RECOMMENDED THAT PLASTIC LENS FABRICATION BE INCLUDED IN THE PROGRAM. APPENDED ARE THE LABORATORIES SURVEYED, CORRESPONDENCE, SURVEY INSTRUMENTS, AND TABULATIONS OF THE RESULTS. (RG)

INSTITUTION NAME: LAKESHORE VOCATIONAL, TECHNICAL, AND ADULT EDUCATION DISTRICT, CLEVELAND, WIS.

SPONSORING AGENCY NAME: WISCONSIN STATE BOARD OF VOCATIONAL, TECHNICAL, AND ADULT EDUCATION, MADISON.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 500

FINAL REPORT

Project No. 11-029-151-226-E

Job Skills Needed in the Area of Plastic Lens Fabrication

by
Marvin A. Schrader, Curriculum Specialist
Richard Wohlever, Instructor

Lakeshore Vocational, Technical and Adult Education District

Cleveland, Wisconsin

May, 1976

The research reported herein was performed pursuant to a grant or contract with the Wisconsin Board of Vocational, Technical and Adult Education, partially reimbursed from an allocation of Federal funds from the U.S. Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Board or U.S. Office of Education position or policy.

12820

VT 103 500

Project No. 11-029-151-226-E

Job Skills Needed

In The

Area

Of

Plastic Lens Fabrication

Final Report

Marvin A. Schrader, Project Director
Richard Wohlever, Instructor

May, 1976

CE 006 633

3

Introduction

Plastic lenses have been used for ophthalmic prescription eyewear since the early 1950's. These lenses were never too popular because of their physical characteristics. The first plastic lenses that were made were very soft and scratched easily. Also, they were noted for turning from a clear color to a yellow tint due to the aging process of the plastic.

During the last 25 years, many technical changes have taken place in the construction process and product characteristics of plastic lenses. Due to these changes, plastic lenses are becoming more popular and are now being recommended by dispensing opticians and doctors as an alternate to glass lenses for their new eyewear.

Description of Need

Lakeshore Technical Institute started a Laboratory Optician Program in fall of 1974. This program was designed to train students to become laboratory opticians. A laboratory optician is a person who is involved in the grinding and polishing of lenses and placing them into ophthalmic frames.

All of our optical equipment and materials that were purchased for the program were designed or set up for glass production. We are unable to work with plastic lenses, as this would involve new machines and materials and modifications of some of our present existing equipment.

At the birth of our program, plastic lense fabrication was not considered to be a part of the program, since the optical laboratories in the area, Wisconsin, Minnesota, and Illinois, were producing no or little plastic lenses as part of their regular production. Our Advisory Committee for our Laboratory Optician Program felt that training in plastic lense fabrication was not necessary. Why is it that only a few years later, plastic lense fabrication would be so important? The optical industry is experiencing a technology revolution and a consumer awareness of fashion eyewear. Plastic lenses have been improved greatly over the last 10 years. A plastic lense of today is half the weight of a similar glass lense. Plastic does not change color due to age, and they are stronger than glass concerning impact resistance in some cases. One disadvantage is that they are softer surface than glass, so they can scratch easier.

Consumers have become more aware of fashion eyewear in the last 15 years. We have seen the introduction and acceptance of metal frames and today's fashion designers, such as Piere Cardan and Oscar de la Renta designing frames. The trend is to larger frame size, which will require larger lenses. This is no fad, as optical manufacturing companies are designing their equipment for future larger sizes.

Since plastic lenses are 50% lighter than glass, people will be wanting the plastic lense versus the glass lense. It is only a

matter of time before the surface of a plastic lense will be harder than glass, as many companies are trying to develop this process at this time.

Due to these changes, optical wholesale companies have seen an increase in their palstic lense production from approximately 10% to 35% or more. This change has led to new demands for lab opticians with expertise in the area of plastic lense fabrication.

Description of Project

At Lakeshore Technical Institute we set out to study the need of such an educational program and to what extent the program should be presented. To do this, we decided to use a survey instrument as our tool to collect data. First of all, it was necessary to determine the location of laboratories in the state of Wisconsin and parts of Minnesota and Illinois. To do this, addresses were taken from area phone books in the yellow pages under Optical Wholesalers. All metropolitan areas of Wisconsin were investigated to see if a wholesale laboratory existed in these areas. Only the larger city areas of Minneapolis-St. Paul and Chicago of Minnesota and Illinois respectively were investigated and a close list of the laboratory survey in this project is attached. A questionnaire was developed (see attachment) and sent to these addresses to determine if and what areas of plastic lense fabrication are the laboratories involved in and do they forecast an increase in plastic lense production? This questionnaire was mailed to the laboratories with a return-reply envelope.

Twenty-seven task and job analyses were sent out to laboratories that fabricate plastic lenses. A phone call or a reminder letter was sent to those labs that did not return this analysis. Of these 27, 15 (56%) responded by sending back their analysis.

Results:

The task analysis shows a majority of laboratories doing glass and plastic lens fabrication in both the surfacing and finishing areas. The average lab size was 11 to 35 employees with the plastic department size being between one and five employees.

Twelve of the fifteen responded that Lakeshore Technical Institute should include plastic lens fabrication as part of their regular educational program.

The job analysis was divided into 3 basic areas: stock, surface, and finish. Basically, the stock area showed a seldom or often frequency with a low or medium range importance. Both surface and finishing operations showed an often or daily frequency with a medium or essential importance. The task having the lowest frequency and importance response was "using frame warmers".

Decisions

Task Analysis results end up as a series of numbers which are in themselves worth very little to the curriculum persons and instructors involved. In order that the numbers have value and the efforts of obtaining this data be justified, decision points must be set. Decision points are points that define parameters of categories. In this study, the categories decided upon were: 1) essential task; must be included at level indicated, 2) non-essential task; recommended for inclusion at level indicated, 3) task can be eliminated without being detrimental to the program; may be nice to know.

The decision points in this study were defined using the mean of the frequency as a criteria. The proficiency mean would then only be used in studying level needed by the students. The decision points were set as presented below. Following these is a listing of the tasks under each of the categories.

Category	Decision Point(s)
1. Essential task; must be included	3.00 and above
2. Nonessential task; recommended for inclusion	2.00-3.99
3. Task that can be eliminated	below 2.00

The following has been based on frequency data.

Essential Task Must Be Included		Essential Task Must Be Included	
1	19	35	51
3	20	36	52
6	21	37	54
7	22	38	55
8	23	39	56
9	24	40	61
10	25	41	62
11	26	43	63
12	28	44	64
13	29	45	65
14	30	46	66
15	31	47	67
16	32	48	68
17	33	49	69
18	34	50	70

Total = 60 Tasks

Decisions (Cont.)

Nonessential Tasks Recommended for Inclusion		Eliminated Nonessential Tasks
2	53	60
4	57	
5	58	
27	59	
42		
Total = 9 Tasks		Total - 1 Task

Recommendations

Based on the information tabulated and evaluated for this particular project, I would recommend that Lakeshore Technical Institute include plastic lens fabrication as part of its educational program. There is no doubt, as the information bears out, that there will be an increasing demand for this particular product, and trained technicians will be necessary to work in this area. Due to the high frequency and importance in both surface and finishing areas, it is essential to include both of these areas in planning this particular program.

A P P E N D I X

I. Timetable of Project

II. Names and Addresses of Companies Sent a Questionnaire

III. Questionnaire Cover Letter

IV. Sample Questionnaire

V. Questionnaire Results

VI. Return To Sender List

VII. Names and Addresses of Companies Sent A Job and Task Analysis

VIII. Task Analysis Cover Letter

IX. Sample Task Analysis

X. Sample Reminder Letter

XI. Tabulation of Task Analysis

XII. Tabulation of Job Analysis

Timetable of Project

March 30	Questionnaire sent out
April 12	Job and Task Anaylsis sent out
April 26	Phone calls made and reminder letters sent to labs that did not respond to J and TA
May 7	End of project - Final evaluation started
May 11	Project completed and turned in to Curriculum Specialist Marv Schrader

NAMES AND ADDRESSES FOR QUESTIONNAIRE

CMI Inc.
6801 West Highs
Chicago, IL 60631

Argus Optical Co.
4817 West Fullerton
Chicago, IL 60639

Art-Craft -Optical Co.
Six North Michican
Chicago, IL 60603

Circle Case Corp.
1960 North Seminary
Chicago, IL 60614

H. J. Birch Optical Co.
5493 North Milwaukee
Chicago, IL 60630

Berteau Optical Co.
3146 North Central
Chicago, IL 60634

Bausch & Lomb
740 West Washington
Chicago, IL 60606

Styl-Rite Optics
27 South Wabash
Chicago, IL 60603

Victory Optical Mfg. Co.
Five North Wabash
Chicago, IL 60602

Three Star Optical Corp.
2640 Golf Road Glenview
Chicago, IL 60648

Imperial Optical Mfg.
Seven West Madison
Chicago, IL 60602

Hanson Optical Co.
4007 West Armitage
Chicago, IL 60639

Weiner Optical Co.
6109 North Lincoln
Chicago, IL 60659

Opticon Inc.
111 North Wabash
Chicago, IL 60602

Ligourie Optical Service
1062 West Taylor
Chicago, IL 60607

Rochester Optical Mfg. Co., Inc.
Five South Wabash
Chicago, IL 60603

Monte Clare Optical Co.
7190 West Grand
Chicago, IL 60635

Optical Radiation Corp.
67 East Madison
Chicago, IL 60603

Maryland Optical Lab
10037 South Western
Chicago, IL 60643

Pee-Optical Lab Inc.
Five South Wabash
Chicago, IL 60603

Martin Wells of America
2235 West Howard
Chicago, IL 60645

Johnsen E. O. Optical
3126 West North
Chicago, IL 60647

Titmus Optical Co., Inc.
Ten South Wabash
Chicago, IL 60603

Hollender S.S. Inc.
Six North Michigan
Chicago, IL 60602

Scalon Optical Co.
6958 North California
Chicago, IL 60645

Optec
3539 North Kenten
Chicago, IL 60623

Pioneer Optical CHGO Inc.
Five South Wabash
Chicago, IL 60603

National Optical Co.
Seven West Madison
Chicago, IL 60602

Central States Optical Co.
Five South Wabash
Chicago, IL 60603

Feher R. & Associates Inc.
67 East Madision
Chicago, IL 60603

Boll & Lewis Co.
Eight South Michigan
Chicago, IL 60603

American Lens Co., Inc.
37 South Wabash
Chicago, IL 60603

Dependable Optical Co.
17 North State
Chicago, IL 60602

Conlan & Lewis
Five South Wabash
Chicago, IL 60603

Central Optical Lab
3909 West Fullerton
Chicago, IL 60647

Aragon Optical Service
4737 North Broadway
Chicago, IL 60640

Burgess Whol. Mfgr. Opticians Inc.
37 South Wabash
Chicago, IL 60602

Merryweather Optical Co.
Six North Michigan
Chicago, IL 60602

I. F. Optical Co.
7456 North Western
Chicago, IL 60645

Vision-Ease Corporation
Five South Wabash
Chicago, IL 60603

Armor Lite Lens Co., Inc.
Five South Wabash
Chicago, IL 60603

Capitol Optical Co., Inc.
Five South Wabash
Chicago, IL 60602

Bimbaum Optical Co.
7035 North Washtenaw
Chicago, IL 60645

Cicero Optical Lab
2248 Laramie Cicero
Chicago, IL 60635

Hanson Optical Co.
4007 West Armitage
Chicago, IL 60639

Breger-Mueller Welt Corp.
28 East Jackson
Chicago, IL 60604

American Optical Co.
5405 Milton Parkway Rosemont
Chicago, IL 60646

Dean Optical Co.
118 South Dearborn
Chicago, IL 60603

Advance Spectacle Co.
537 South Dearborn
Chicago, IL 60605

Stanton Optical Co.
122 South Michigan
Chicago, IL 60603

Industrial Optical Service
Six North Michigan
Chicago, IL 60602

Mager & Gougelman Inc.
30 North Michigan
Chicago, IL 60602

Wiener Brothers
4226 South Archer
Chicago, IL 60632

Lens-Kote Inc.
4005 North Nashville
Chicago, IL 60634

New Era Optical Co.
17 North Wabash
Chicago, IL 60602

Nu-Mode Optical Co.
Five South Wabash
Chicago, IL 60603

Quality Optical
Five South Wabash
Chicago, IL 60603

Lorenz Optical Co.
Five North Wabash
Chicago, IL 60602

Optical Products CHGO
7121 North Ridge
Chicago, IL 60645

Towne Optical
3650 West 26th
Chicago, IL 60602

Laszlo Optical Co.
2701 North Mildred
Chicago, IL 60614

Liberty Optical Mfg. Co.
37 South Wabash
Chicago, LI 60603

Gillespe Optical Co.
3022 East 92
Chicago, IL 62223

Martin Wintz
5956 West Roosevelt
Chicago, IL 60650

Wesely-Jesson Inc.
37 South Wabash
Chicago, IL 60603

Mutual Optical Co.
5956 West Roosevelt
Chicago, IL 60650

Gillespe Optical Lab.
3319 Ridge Road Lansing
Chicago, IL 60642

Phillips Optical Co.
25 East Washington
Chicago, IL 60623

Admiral Optical Co.
4555 North Broadway
Chicago, IL 60640

Stereo Optical Co., Inc.
3539 North Kenten
Chicago, IL 60641

Royal Optical
111 North Wabash
Chicago, IL 60602

Hillmar Optical Co., Inc.
Seven West Madison
Chicago, IL 60602

King Optical
127 North Dearborn
Chicago, IL 60602

Gem-Craft Inc.
Five North Wabash
Chicago, IL 60602

Foremost Optical Products Corp.
Five South Wabash
Chicago, IL 60603

A. E. Winner
67 East Madison
Chicago, IL 60603

HOV Optical Inc.
137 North Wabash
Chicago, IL 60602

Widraw Optical Co.
Seven West Madison
Chicago, IL 60602

Precision-Cosmetology
67 East Madison
Chicago, IL 60603

Peoples Optical Co.
Five North Wabash
Chicago, IL 60602

Roscoe Bifocal Co., Inc.
22 West Madison
Chicago, IL 60602

Benson's
1024 Regent
Madison, WI 53715

Ehrmann Optical Co.
5727 West Burnham
Milwaukee, WI 53219

Ema Co.
831 North Prospect Avenue
Milwaukee, WI 53202

Fluegge Optical Service Inc.
4625 South 6th
Mi[redacted]kee, WI 53221

Globe Optical Co.
1801 South 11th
Milwaukee, WI 53204

HOV Optical Co., Inc.
5240 West Fond du Lac Avenue
Milwaukee, WI 53216

Solar Optical Co.
215 North 35th
Milwaukee, WI 53208

Universal Optical Lab, Inc.
5729 West Vliet
Milwaukee, WI 53208

Victory Opticians Inc.
215 North 35th
Milwaukee, WI 53208

Kindy Optical Co.
835 West Johnson
Fond du Lac, WI 54935

WOS
1090 Valley Road
Menasha, WI 54952

Soderberg Optical Service Inc.
205 Lynne Tower Bldg.
La Crosse, WI 54601

Benson's
415 Jones
Eau Claire, WI 54701

Soderberg, Inc.
207 North Barsow
Eau Claire, WI 54701

Herslof Optical Co., Inc.
12000 West Carmen Avenue
Milwaukee, WI 53225

Bausch & Lomb
1364 Reber
Green Bay, WI 54302

WOS
2050 Riverside Drive
Green Bay, WI 54301

Union Optix Center
502 South Military Avenue
Green Bay, WI 54303

Union Optix Center
2046 Union Avenue
Green Bay, WI 54303

Eye Inc.
2017 Geneva
Racine, WI 53402

American Optical Co.
16 North Carroll
Madison, WI 53703

Bausch & Lomb Inc.
214 North Hamilton
Madison, WI 53703

Madison Optical Service
409 East Main
Madison, WI 53703

Norsemann Optical Lab
3916 Monona Drive
Madison, WI 53716

Benson's
423 Pleasant
Beloit, WI 53511

American Optical Co.
302 North Main
Oshkosh, WI 54901

Bausch & Lomb Inc.
321 North Appleton
Appleton, WI 54911

Uhlemann Optical Co.
103 West College Avenue
Appleton, WI 54911

American Optical Co.
225½ Third
Wausau, WI 54401

Benson's
210 McClellan
Wausau, WI 54401

Bausch & Lomb Inc.
St. Paul Bldg.
St. Paul, MN 55124

Eye Kraft
Industrial Park
St. Cloud Mpls, MN 55441

HOV Optical Co., Inc.
822 Marg Avenue
Minneapolis, MN 55402

Phillips Optical Co., Inc.
27 North 4th Street
Minneapolis, MN 55401

Soderberg Optical Service
Finch Bldg.
St. Paul, MN 55124

Swan-Minnesota
2025 Nic Avenue
Minneapolis, MN 55401

Twin-City Optical Co.
84 South 10th Street
Minneapolis, MN 55415

King Optical
46 South 6th Street
Minneapolis, MN 55401

Vision Ease
Industrial Park
St. Cloud Mpls, MN 55441

Walman Optical Co., Inc.
Lowry Med. Arts Bldg.
St. Paul, MN 55422

Wessley-Jensen
6950 France Avenue
Minneapolis, MN 55435

Soderberg Optical Service
16 North Carroll
Madison, WI 53703

Alpa Corporation
5501 W. North Avenue
Milwaukee, WI 53208

American Optical Co.
623 North Second
Milwaukee, WI 53203

Bausch & Lomb Inc.
9733 W. Greenfield Avenue
Milwaukee, WI 53214

LAKESHORE Technical Institute

Frederick J. Nierode
District Director

LAKESHORE VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICT

1290 NORTH AVENUE PHONE (414) 693-8211
CLEVELAND, WISCONSIN - 53015

Dear Lab Manager:

We are considering adding plastic lens fabrication to our present Laboratory Optician Program at Lakeshore Technical Institute. To do this, we need your help to determine the need and the extent of training necessary for this addition to our program.

Would you be so kind as to take a few minutes and fill out the enclosed questionnaire and return this form to our school. I wish to sincerely thank you for your cooperation and time in helping us.

Sincerely yours,

Richard Wohlever

Richard Wohlever
Optical Program Instructor

RW:lg

EQUAL OPPORTUNITY IN EDUCATION AND EMPLOYMENT

Questionnaire

Need for Training in Plastic Lens Fabrication

Please complete the questions below and return to Lakeshore Technical Institute.

Laboratory Name _____

Address _____

_____

Please check one:

	Yes	No
1. Do you fabricate plastic lenses in your laboratory in surfacing or finishing. If no, do not complete below questions.	_____	_____
2. If yes for question one, in which of the following areas:		
A. Both Surface & Finish	_____	_____
B. Surface Only	_____	_____
C. Finish Only	_____	_____
3. Do you forecast an increase in your plastics lens production in the future?	_____	_____

Additional Comments:

3/76

Questionnaire Results

Laboratory	Questions				
	One	A	B	C	3
Berteau Optical, IL	Yes			Yes	Yes
H.O.U. Optical, IL	Yes	Yes			Yes
Herslof, Milwaukee, WI	Yes	Yes			Yes
Victory, Milwaukee, WI	Yes	Yes			Yes
Royal Optical, IL	Yes			Yes	Yes
Dependable Optical, IL	Yes			Yes	Yes
Soderberg, Milwaukee, WI	Yes	Yes			Yes
Twin City Optical, MN	Yes	Yes			Yes
Wesley-Jessen, IL	Yes	Yes			Yes
H.O.U. Optical, MN	Yes	Yes			Yes
Eye Kraft Optical, MN	Yes	Yes			Yes
Vision Ease, MN	No				Yes
Phillips Optical, MN	Yes	Yes			Yes
American Optical, IA	Yes	Yes			Yes
Soderberg, Madison, WI	Yes			Yes	Yes
Ehrmann, Milwaukee, WI	Yes	Yes			Yes
Benson, Madison, WI	Yes	Yes			Yes
H.O.U. Milwaukee, WI	Yes	Yes			Yes
B&L, West Allis, WI	Yes			Yes	Yes
Weiner Optical, IL	Yes	Yes			Yes
Benson Eau Claire, WI	No				
Soderberg, MN	Yes	Yes			Yes
Soderberg, Eau Claire, WI	Yes			Yes	Yes
Madison OP, Madison, WI	Yes	Yes			Yes
Maryland, IL	No				
B&L. MN	No				
Laszlo, IL	No				

Questionnaire Results (p. 2)

Laboratory	Questions				
	One	A	B	C	3
Benson, Wausau, WI	No				
B&L, Green Bay, WI	No				
WOS, Menasha, WI	No				
American Optical Whitewater, WI	Yes		Yes		Yes
Liguori Optical, IL	Yes			Yes	Yes
Boll & Lewis, IL	Yes	Yes			Yes
Uhlemann, Appleton, WI	Yes			Yes	Yes
B&L, Appleton, WI	Yes			Yes	Yes

TABULATION AND EVALUATION OF QUESTIONNAIRE

A total of 35 questionnaires were returned out of a total of 126 that were mailed to the laboratories. Tabulation of the questionnaires received is as follows:

1. Yes 27, No 8

2. a. 17
   b. 1
   c. 9

3. 28, Yes; 27, no answer

The above tabulation shows a large number, 27 out of 35, doing plastic lens fabrication. Seventeen responded that both surface and finishing operations were being done in their laboratory. Only one lab responded as to doing only the surfacing operation of plastic lens fabrication while nine responded that they did only the finishing operation in their laboratory.

All labs that were fabricating plastic lenses in surface and/or finish operations forcasted an increase in plastic lens fabrication. Only one manufacturer responding indicated an increase in plastic lens fabrication. Numerous comments were listed concerning anticipated increases in plastic lens fabrications for the future.

We may evaluate the above tabulation by saying the following: Many labs are doing both surface and finishing operations while some laboratories are doing finishing only. The labs which finish only are probably branch laboratories which receive surface lenses from the main lab. The results of the answer of question 3 definitely show an increase in plastic lens fabrication for the future for the laboratories which are doing this type of operation.

Return to Sender

Foremost Optical Products Corp.
Five South Wabash
Chicago, IL 60603

Bimbaum Optical Co.
7035 North Washtenaw
Chicago, IL 60645

Aragon Optical Service
4737 North Broadway
Chicago, IL 60640

Alpa Corporation
5501 W. North Avenue
Milwaukee, WI 53208

Armor Lite Lens Co., Inc.
Five South Wabash
Chicago, IL 60603

Job and Task Analysis Mailing

Received		Names and Addresses
x	1.	Uhlemann Custom Opticians, Appleton, WI
x	2.	Boll & Lewis, Morton Grove, IL
x	3.	Liguori Optical, IL
x	4.	American Optical, Whitewater, WI
x	5.	B & L, Minneapolis, MN
	6.	Berteau Optical, IL
	7.	H.O.U. Optical, IL
x	8.	Herslof Optical, Milwaukee, WI
x	9.	Victory Opticians, Milwaukee, WI
	10.	Royal Optical, IL
	11.	Dependable Optical, IL
x	12.	Soderberg, Inc., Milwaukee, WI
x	13.	Twin City Optical, Minneapolis, MN
x	14.	Wessley-Jessen, IL
x	15.	H.O.U. Optical, Minneapolis, MN
	16.	Eye Kraft, St. Cloud, MN
	17.	Vision Ease, St. Cloud, MN
	18.	Phillips Optical, Minneapolis, MN
	19.	American Optical, Iowa
	20.	Benson Optical, Madison, WI
x	21.	H.O.U. Milwaukee, WI
	22.	B & L, West Allis, WI
	23.	Weiner Optical, IL
	24.	Soderberg, Inc., Eau Claire, WI
x	25.	Soderberg, Inc., St. Paul, MN
	26.	Madison Optical, Madison, WI
x	27.	Soderberg, Inc., Madison, WI
	28.	Ehrmann Optical, Milwaukee, WI
x	29.	B & L, Appleton, WI
	30.	

LAKESHORE Technical Institute

Frederick J. Nierode
District Director

LAKESHORE VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICT

1290 NORTH AVENUE PHONE (414) 693-8211
CLEVELAND, WISCONSIN - 53015

March 30, 1976

Dear Lab Manager:

In the recent questionnaire which you returned to us, you indicated that you fabricate plastic lenses in your laboratory.

Before developing plastic lens fabrication as part of our program, it is necessary for us to obtain additional information concerning the need for this training and to what extent it should be taught in an educational program.

We are asking you to help us by filling out the following form and returning the form to Lakeshore Technical Institute in the enclosed reply envelope. Your cooperation in this endeavor will be greatly appreciated.

Sincerely yours,

Richard Wohlever
Optical Program Instructor

RW:bac

Enclosures

EQUAL OPPORTUNITY IN EDUCATION AND EMPLOYMENT

LAB OPTICIAN

PLASTIC LENS FABRICATION

TASK ANALYSIS

Please answer the following questions concerning your laboratory, by inserting a check mark in the appropriate space.

Which of the following areas are you involved in concerning your laboratory operation?

1. _____ surface and finish (glass)
2. _____ finish only (glass)
3. _____ surface and finish (plastic)
4. _____ finish only (plastic)

How many lab opticians are there in your laboratory total operation of laboratory (glass and/or plastic)?

5. _____ 1 - 5
6. _____ 5 - 10
7. _____ 11 - 20
8. _____ 21 - 35
9. _____ 36 - 50
10. _____ More than 50

How many lab opticians are in your plastics lens fabrication operation?

11. _____ 1 - 5
12. _____ 6 - 10
13. _____ 11 - 15
14. _____ 16 - 20
15. _____ More than 20

Do you feel that plastic lens fabrication should be a part of the educational program at Lakeshore Technical Institute?

16. _____ yes
17. _____ no

LAB OPTICIAN

PLASTIC LENS FABRICATION

JOB ANALYSIS

Purpose: To identify tasks usual to the work of the lab optician in plastic lens fabrication only. Do not include tasks of the lab optician involved in glass production in your laboratory.

Directions: Blacken the appropriate number for each of the items in each section for both the task frequency and task importance. At the end of the questionnaire, there are blank spaces for additional tasks.

Task Number	Task Performed by Lab Optician in Plastics Lens Fabrication	Task Frequency (Never, Seldom, Often, Daily)	Task Importance (None, Low, Medium, Essential)
I.	Stock Room Work		
	A. Inventory (Plastic Lenses)		
	1. Determines inventory amount	1 2 3 4	1 2 3 4
	2. Count inventory	1 2 3 4	1 2 3 4
	3. Pull stock for lab jobs	1 2 3 4	1 2 3 4
	B. Inventory (Frames)		
	4. Determines inventory amount	1 2 3 4	1 2 3 4
	5. Count inventory	1 2 3 4	1 2 3 4
	6. Pull stock for lab jobs	1 2 3 4	1 2 3 4
II.	Surface Area		
	A. Layout and Marking		
	7. Determine if correct lenses have been selected	1 2 3 4	1 2 3 4
	8. Calculate center thickness and curves by hand	1 2 3 4	1 2 3 4
	9. Check marker for accuracy	1 2 3 4	1 2 3 4

	Task Frequency (Never, Seldom, Often, Daily)	Task Importance (None, Low, Medium, Essential)
10. Determine inset and drop	1 2 3 4	1 2 3 4
11. Mark by hand	1 2 3 4	1 2 3 4
B. Surface Blocking		
12. Block Cx and CC curves using an alloy	1 2 3 4	1 2 3 4
13. Re-block for surfacing	1 2 3 4	1 2 3 4
C. Generating		
14. Operate manual generator	1 2 3 4	1 2 3 4
15. Operate automatic generator	1 2 3 4	1 2 3 4
16. Generate minus curves using a generator	1 2 3 4	1 2 3 4
17. Generate plus curves using a generator	1 2 3 4	1 2 3 4
18. Set for prism grind	1 2 3 4	1 2 3 4
19. Change coolant in generator	1 2 3 4	1 2 3 4
20. Check accuracy of generated curve	1 2 3 4	1 2 3 4
D. Fining and Polishing		
21. Fining using hand surfacer	1 2 3 4	1 2 3 4
22. Fining using automatic sph machine	1 2 3 4	1 2 3 4
23. Fining using cylinder machine	1 2 3 4	1 2 3 4
24. Fining using emery pad and water	1 2 3 4	1 2 3 4
25. Checking for fining and polishing grey	1 2 3 4	1 2 3 4
26. Polishing for spheres and cylinders	1 2 3 4	1 2 3 4
27. Mix fining and polishing solutions	1 2 3 4	1 2 3 4
28. Checking accuracy of finers and polishers	1 2 3 4	1 2 3 4

	Task Frequency (Never, Seldom, Often, Daily)	Task Importance (None, Low, Medium, Essential)
E. Surface Check-Out of Lenses		
29. Check lense power	1 2 3 4	1 2 3 4
30. Check final thickness	1 2 3 4	1 2 3 4
31. Adjust lensometer for accuracy	1 2 3 4	1 2 3 4
32. Locate optical center using lensometer	1 2 3 4	1 2 3 4
33. Use lensometer to verify optical characteristics	1 2 3 4	1 2 3 4
34. Determine if surface lens should be rejected	1 2 3 4	1 2 3 4
III. Finish Area		
A. Layout and Marking		
35. Spot lenses using lensometer	1 2 3 4	1 2 3 4
36. Determine minimum blank size	1 2 3 4	1 2 3 4
37. Determine A and B measurements	1 2 3 4	1 2 3 4
38. Determine effective diameter of frame	1 2 3 4	1 2 3 4
39. Measure distance between lenses	1 2 3 4	1 2 3 4
40. Calculate "below center" or "drop"	1 2 3 4	1 2 3 4
41. Calculate "decentration"	1 2 3 4	1 2 3 4
B. Chucking or Blocking		
42. Use lens clamp for fiber chucking	1 2 3 4	1 2 3 4
43. Operate finish blocker	1 2 3 4	1 2 3 4
44. Check blocker temperature	1 2 3 4	1 2 3 4
45. Chuck block lenses in edger	1 2 3 4	1 2 3 4

	Task Frequency (Never, Seldom, Often, Daily)	Task Importance (None, Low, Medium, Essential)
C. Edger		
46. Set edger size	1 2 3 4	1 2 3 4
47. Set for correct bevel (rimless, U-Bevel, Hide A Bevel)	1 2 3 4	1 2 3 4
48. Check for correct bevel location	1 2 3 4	1 2 3 4
49. Clean edger	1 2 3 4	1 2 3 4
50. Change coolant	1 2 3 4	1 2 3 4
51. Set axis of edger	1 2 3 4	1 2 3 4
52. Correct for edger size error	1 2 3 4	1 2 3 4
53. Dress diamond wheels	1 2 3 4	1 2 3 4
54. Check lens size after edging	1 2 3 4	1 2 3 4
D. Hand Edging		
55. Shape plastic lenses to frame shape and size	1 2 3 4	1 2 3 4
56. Safety bevel lens	1 2 3 4	1 2 3 4
57. Dress hand wheels	1 2 3 4	1 2 3 4
E. Mounting Plastic Lenses into Frames		
58. Use heating pans with salt	1 2 3 4	1 2 3 4
59. Use heating pans with glass beads	1 2 3 4	1 2 3 4
60. Use air warmers	1 2 3 4	1 2 3 4
61. Heat frame and insert lenses	1 2 3 4	1 2 3 4
62. Align lenses in frames	1 2 3 4	1 2 3 4
63. Place lenses in standard adjustment	1 2 3 4	1 2 3 4
64. Clean glasses after mounting lenses	1 2 3 4	1 2 3 4

	...Task... Frequency	Task Importance
	Never Seldom Often Daily	None Low Medium Essential
F. Final Finish Check Out		
65. Check optical characteristics such as power, axis, add power	1 2 3 4	1 2 3 4
66. Spot for pupillary distance	1 2 3 4	1 2 3 4
67. Measure pupillary distance	1 2 3 4	1 2 3 4
68. Determine if lens meet imbalance standards, horizontal and vertical	1 2 3 4	1 2 3 4
69. Reject lenses because they do not meet your standard.	1 2 3 4	1 2 3 4
70. Readjust frames that are not adjusted to standards	1 2 3 4	1 2 3 4
Other Tasks deemed appropriate for Lab Optician in Plastic Lens Fabrication		
71.	1 2 3 4	1 2 3 4
72.	1 2 3 4	1 2 3 4
73.	1 2 3 4	1 2 3 4
74.	1 2 3 4	1 2 3 4
75.	1 2 3 4	1 2 3 4
76.	1 2 3 4	1 2 3 4
77.	1 2 3 4	1 2 3 4

Comments:

LAKESHORE Technical Institute

Frederick J. Nierode
District Director

LAKESHORE VOCATIONAL, TECHNICAL AND ADULT EDUCATION DISTRICT

1290 NORTH AVENUE PHONE (414) 693-8211
CLEVELAND, WISCONSIN - 53015

Dear Lab Manager:

Recently, we sent you a survey concerning a job and task analysis of the lab optician involved in your plastic lens fabrication operation.

We would like to remind you that your input is important for this project. Please try to take a few minutes out of your busy schedule today to fill out our survey and return it to Lakeshore Technical Institute.

Thank you for your cooperation and time on this project.

Sincerely yours,

Richard Wohlever
Optical Program Instructor

RW:dn

EQUAL OPPORTUNITY IN EDUCATION AND EMPLOYMENT

Tabulation of Task Analysis

1.	13
2.	2
3.	9
4.	6
5.	3
6.	2
7.	5
8.	4
9.	--
10.	--
11.	9
12.	3
13.	1
14.	1
15.	--
16.	12
17.	1

Tabulation of Job Analysis

	Task Frequency	Task Importance
1.	2.33	3.18
2.	2.25	2.81
3.	3.17	3.30
4.	2.33	2.81
5.	2.00	2.54
6.	2.83	3.09
7.	3.91	3.91
8.	2.83	3.54
9.	3.42	3.75
10.	3.67	3.83
11.	3.00	3.45
12.	3.80	3.90
13.	3.60	3.90
14.	3.75	3.75
15.	2.66	3.00
16.	3.78	3.77
17.	2.78	3.00
18.	3.20	3.20
19.	2.81	3.13
20.	3.80	3.89
21.	3.00	3.00
22.	3.70	3.70
23.	3.80	3.80
24.	3.60	3.60
25.	3.70	3.70
26.	3.60	3.90
27.	2.70	2.80
28.	3.70	3.80
29.	3.73	3.90
30.	3.60	3.90
31.	3.00	3.90
32.	3.60	3.64
33.	3.60	3.73
34.	3.60	3.70
35.	4.00	4.00
36.	3.83	3.92
37.	3.75	3.85
38.	3.42	3.54
39.	3.92	3.92
40.	4.00	4.00
41.	4.00	4.00
42.	1.60	2.00
43.	3.89	3.90
44.	3.10	3.27
45.	3.91	3.92
46.	3.92	4.00
47.	4.00	4.00
48.	3.92	4.00
49.	3.45	3.61
50.	3.17	3.46
51.	3.18	3.54
52.	3.36	3.77
53.	2.27	2.77
54.	4.00	4.00

	Task Frequency	Task Importance
55.	3.58	3.67
56.	3.92	3.92
57.	2.18	2.83
58.	3.08	2.90
59.	2.40	2.60
60.	1.60	1.89
61.	4.00	4.00
62.	4.00	4.00
63.	4.00	4.00
64	3.38	3.51
65.	4.00	4.00
66.	3.76	4.00
67.	4.00	4.00
68.	4.00	4.00
69.	3.85	4.00
70.	4.00	4.00
Lens drying	3.5(2)	3.0(1)
Pattern making	3.0(1)	3.0(1)
Pattern making commputerized layout.	4.0(1)	4.0(1)
Coating before edging	4.0(1)	4.0(1)

CE 006 635

ACCESSION NUMBER: VT103502

PUBLICATION DATE: 76

TITLE: FOOD SERVICE SYSTEM PLANNING.

PERSONAL AUTHOR: GEPHART, WOODROW W.

DESCRIPTOR: *SCHOOL ACCOUNTING; *RECORDS (FORMS); *DATA COLLECTION; *FOOD SERVICE; SCHOOL SERVICES; LUNCH PROGRAMS; BREAKFAST PROGRAMS; MANAGEMENT; FACILITY INVENTORY; COSTS

IDENTIFIER: *OHIO

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 44P.

ABSTRACT: DURING THE FOOD SERVICE SYSTEM PLANNING PROJECT REPORTED FOR THE PERIOD AUGUST 1, 1975-JUNE 30, 1976, AN AUTOMATED FOOD SERVICE DATA SYSTEM WAS DEVELOPED FOR USE BY ALL THE PUBLIC SCHOOLS IN OHIO. PLANNING AND ACCOUNTABILITY PROCEDURES IN SCHOOL FOOD SERVICE OPERATIONS WERE ANALYZED, REPORTING FORMS WERE REVISED, AND DATA COLLECTION INSTRUMENTS WERE DESIGNED AND TESTED. MANAGEMENT DATA FOR MORE EFFECTIVE INVENTORY CONTROL AND MANPOWER UTILIZATION IN ASSIGNING COSTS ARE TO BE REPORTED ON THE FORMS, WHICH MAY ACCOMMODATE MANUAL AND AUTOMATED DATA PROCESSING. THE DATA INSTRUMENTS WITH RELATED ACCOUNTING PROCEDURES, COMPRISING MOST OF THE DOCUMENT, ARE: LABOR AND OTHER COSTS REPORT, SCHOOL BREAKFAST CLAIM FOR REIMBURSEMENT, INVENTORY COST REPORT, MONTHLY SCHOOL CLAIM FOR REIMBURSEMENT, SPECIAL OCTOBER-MARCH REPORT SCHOOL FOOD SERVICE PROGRAM, SCHOOL BREAKFAST PROGRAM DAILY WORKSHEET, FOOD SERVICE BEGINNING AND CHANGE REPORT, AND SCHOOL LUNCH AND MILK PROGRAM DAILY WORKSHEET. (MF)

INSTITUTION NAME: ASHTABULA COUNTY JOINT VOCATIONAL SCHOOL DISTRICT, JEFFERSON, OHIO.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 502

Title of Project:	Food Service System Planning (R-7-76)
Applicant Organization:	Ashtabula County JVSD S. R. 167 and Beatty Road Jefferson, OH 44047
Initiator: (principal investigator)	Woodrow W. Gephart Dr. Woodrow W. Gephart, Superintendent Ashtabula County JVSD S. R. 167 and Beatty Road Jefferson, OH 44047 216: 576-6015
Transmitted by:	Woodrow W. Gephart Dr. Woodrow W. Gephart, Superintendent Ashtabula County JVSD S. R. 167 and Beatty Road Jefferson, OH 44047 216: 576-6015
Duration of Activity:	August 1, 1975 - June 30, 1976
Purpose of Grant:	Research and training programs in vocational education
Use of Funds:	Research and training program
Total Funds Used:	$6,711.51

VT 103 502

ABSTRACT

Title of Project:	Food Service System Planning (R-7-76)
Principal Investigator:	Dr. Woodrow W. Gephart, Superintendent
Contracting Agency:	Ashtabula County JVSD S. R. 167 and Beatty Road Jefferson, OH 44047
Funds Used:	$6,711.51
Beginning and Ending Dates:	August 1, 1975 - June 30, 1976

Statement of Problem: An effective planning and accountability procedure was needed for use by vocational education food service job training administrators and other school food service administrators. A data collection instrument for food service was developed and field-tested.

Statement of Objectives:

(1) Present planning and accountability procedures were analyzed in vocational and other school food service operations.

(2) An effective data collection instrument was designed for vocational and other school food services.

(3) Vocational and other school food service reporting forms were tested and validated.

(4) Needed changes in vocational and other food service accounting operations for FY77 were identified.

(5) Changes needed in vocational and in other food services accountability are being recommended to the State Department of Education.

Techniques of Evaluation of Objectives: A data collection instrument for vocational education and other school food service operations was developed, field tested and revised and turned over to the State Department of Education for state use.

Contribution to Education: Data collection instruments that school administrators can use to analyze cost of job training and other food service feeding operations have been developed and revised.

NARRATIVE PROPOSAL PLAN

Problem

An analysis of the elementary and secondary school food system operation across Ohio by the Ashtabula County JVS and the State Division of Food Service indicated the need for an automated food service data system for use by both vocational job training and other feeding operations within all the public schools of Ohio. A myriad of factors involved in planning both for vocational food service job training and for feeding operations plus determining accountability for both time and funds necessitated changes in current elementary and secondary school food service operations. More automated data was needed for sound management and more effective inventory control and manpower utilization in assigning costs between job training and other school feeding operations.

Objectives

(1) Present planning and accountability procedures were analyzed in vocational food service job training and other school food service operations.

(2) An effective data collection instrument was designed which can accomodate manual and automated data processing.

(3) The school's vocational job training and other food service reporting procedures were tested, validated, and some were revised for more effective management planning.

(4) Changes in vocational job training and other food service operations were identified and changes made for FY77.

(5) Changes needed for vocational and other food service operations and in reports for the State Department of Education were field tested and revised.

Description of Activities

(1) August 1 - 31, 1975

Current food service reporting forms used by elementary and secondary schools were reviewed through mail requests and meeting with state and local school food service administrators. As a result, the Food Service Manual is being revised.

(2) September 1 - 15, 1975

Costing procedure instructions and forms which can accomodate manual and automated data processing have been designed. These forms included procedures to account for:

a. Inventory control between job training and other food service operations.

b. Labor cost charge between job training and other food service operations.

c. Instruction cost charge between job training and other food service operations.

d. Supervision cost charge between job training and other food service operations.

(3) September 16 - October 15, 1975

Necessary materials and forms were printed in the joint vocational school as a part of the printing program project and field tested in elementary and secondary food service operations.

(4) October 16 - 31, 1975

Costing procedures and forms were handed out to schools at group meetings such as the Ohio School Board Association to JVS superintendents who completed and monitored for needed changes.

(5) November 1, 1975 - March 31, 1976

Completed food service reports were edited and a draft of changes needed were discussed, tested and implemented.

(6) April 1 - June 30, 1976

a. Food service costing procedures and forms were developed through workshops, meetings, and telephone calls with local and state vocational education food service training administrators and other food service personnel.

b. Final report with recommended changes for school year 1976-77 has been made. Copies of revised forms are enclosed to indicate improvements made for effective food service operation which includes a revised Food Service Manual for FY77.

Techniques of Evaluation

(1) Food service data collection instruments were developed and field tested in local elementary and secondary Ohio schools during the school year 1975-76. The January - February computer scan error of 20 percent in February had been reduced to only 6 percent by May.

(2) The State Division of Food Services has the field tested form with recommended changes for use in FY77, which is included in this report.

Contribution to Education

The development of these automated Food Service Operation data instruments with related accounting procedures should be useful to any school administrator who is computing cost for job training and other food service operations within the same school plant.

PROGRAM OR PROJECT EXPENDITURES

R-7-76

Title of Program or Project: Food Service System Planning

Applicant Organization: Ashtabula County JVSD

Beginning and Ending Dates: August 1, 1975 through June 30, 1976

Category of Expenditure	197 STATE FUNDS	197 STATE FUNDS	TOTAL
a. Personnel (position titles; percent of time on project and yearly salary; for consultants, number of days and rate)			
b. Fringe Benefits (itemize benefits such as social security, retirement, group insurance, etc.)			
c. Travel (in and out-of-state for regular and consultant personnel; fares and/or mileage at allowable rate; number of days per diem and rate)			
d. Equipment (rental; small, essential items may be purchased is less expensive)			
e. Supplies and Materials (describe)			
f. Outside Services for duplication, statistical, testing, and other contractual	$6,711.51		$6,711.51
h. Other (identify)			
i. Total Expenditures	$6,711.51		$6,711.51

CN-8

OHIO DEPARTMENT OF EDUCATION
SCHOOL FOOD SERVICE DIVISION

LABOR AND OTHER COSTS REPORT

Authorized Signature

Phone ___-___-___

School

District

County

PLEASE READ INSTRUCTIONS ON REVERSE SIDE

SCHOOL IRN

July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
March
April
May
June

1975
1976
1977

Original Report

Revised Report

This form must be submitted with Form CN2 (Inventory Cost Report)

VALUE OF LABOR USED

1 FOOD SERVICE DIRECT LABOR COSTS (Accrued)

2 LABOR INDUCED COSTS (Mileage, uniform allowances, etc.)

3 TOTAL NUMBER OF FOOD SERVICE LABOR HOURS USED FOR THIS MONTH

4 COST OF FOODS SOLD TO OTHER FUNCTIONS

5 COST OF LABOR SOLD TO OTHER FUNCTIONS

6 COST OF ALL SUPPLIES SOLD TO OTHER FUNCTIONS

7 COST OF SPECIAL "TYPE A" SUPPLIES SOLD TO OTHERS

8 Amount of General Fund Expenditures for Food Service Employees Ins. and Other Benefits

9 Value of Purchased Services (Service Contracts, Maintenance, Rentals, etc.)

OTHER INCOME

10 Fund Transfers, Donations, Interest, & Misc. Receipts not Reported on CN1 Report

11 Receipts From Sale of Food Services to Other Functions (food, labor, supplies)

12 TOTAL DEPOSITED Food Service Bank Deposit Total for This Month

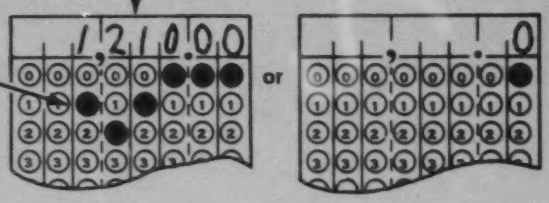
MONTHLY LABOR AND OTHER COSTS REPORT CN-8
INSTRUCTIONS

TO FILL OUT THE FORM:

1. Use a No. 2 lead pencil. Identification information may be typed with care not to intrude into the reporting area. Data must be entered for all items each month. Report must be signed by an authorized person.

2. First, write the numbers in the rectangles above the numbered bubbles. Pay particular attention to decimals and commas, such as:

Second, darken the corresponding bubble below each number, such as:



Third, clearly erase any response that is changed. Completely darken the bubble for each number you mark.

3. Data must be recorded in each column. Enter "0" if there is no information to report.

This form covers operations for one calendar month for each school or food preparation site. The form is required for reporting the dollar value of labor used, other costs associated with labor, costs of items sold to others outside the normal school food operation, and other costs and incomes not recorded on Form CN-1. This information accompanied by Form CN-2 will justify your claim for reimbursement for Breakfasts, Lunches, and/or Milk.

The report is due in the state office by the 10th of the month following the month being reported. Reports or corrections received 90 days after a reporting month will not be honored and could nullify your claim for reimbursement.

FILING COMPOSITE REPORTS

Districts that have 2 or more schools, where food service costs are not easily identifiable for each school, (such as a base kitchen transporting food to satellite schools) may report on one composite report for the group. Forms CN-2 and CN-5 must parallel the reporting system used for this report. Report the base kitchen as the group.

Enter the school's IRN in the space provided and darken the corresponding bubbles below each digit. Darken the proper bubble for the month and year of the report and if it is an original or revision for this month.

Refer to your Food Service Reporting and Management Information Handbook (distributed May and June, 1974) for detailed explanations of each item reported. Include costs for all food service functions in this school: Breakfasts, Banquets, auxiliary food services, etc.

1. Actual value of food service labor used during the month including sick leave, paid holidays, and proper proration of annual salaries. It may not necessarily agree with Clerk's payroll. If some direct labor (Supervisors) is paid from a general fund, report the value here and also as income under No. 10.

2. Self-explanatory.

3. Report number of hours actually used for food service by all food service employees. Could easily be taken from a "Time and Attendance" record. This question is optional for districts which do not collect labor hours.

4, 5, 6, 7. Costs of food, labor, and supplies (also special supplies sold to other districts) sold to other functions such as Banquets, Breakfast programs or other food preparation or training functions.

8. Report the value of expenditures from the General Fund for Insurances (Hospitalization, Life, etc.) and other indirect costs. Do not include Board's share of Retirement or Workman's Compensation.

9. Purchased services include equipment repairs and other maintenance, refuse removal, laundry and similar services. If any of these are paid from General Fund they must be recorded with No. 8.

10, 11. Other income which cannot be recorded with daily receipts on the daily worksheets and reported on Form CN-1.

12. Total deposits must be recorded in order to reconcile the total receipts from the claim forms plus other income on this report.

Verify costs as truly representing this month's share of expenses in relation to the actual food services provided this month.

The original report shall be forwarded to the Ohio Department of Education, Division of School Food Service, 65 South Front Street, Room 1009, Columbus, Ohio 43215, no later than the TENTH DAY OF THE MONTH following the calendar month being reported. A copy should be retained by the Board of Education clerk for a permanent record.

NCS Trans-Optic F2961-54321

CN 4

OHIO DEPARTMENT OF EDUCATION
SCHOOL FOOD SERVICE DIVISION

SCHOOL BREAKFAST CLAIM FOR REIMBURSEMENT

PLEASE READ INSTRUCTIONS ON REVERSE SIDE

SCHOOL IRN

July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
March
April
May
June

1975
1976
1977

Original Report

Revised Report

I CERTIFY THAT THIS CLAIM FOR REIMBURSEMENT IS TRUE AND CORRECT, IN IN ACCORDANCE WITH THE TERMS OF EXISTING AGREEMENTS WITH THE STATE DEPARTMENT OF EDUCATION, THAT PAYMENT THEREFOR HAS NOT BEEN RECEIVED, AND THAT RECORDS ARE AVAILABLE TO SUPPORT THIS CLAIM.

Authorized Signature

Phone

School

District

County

BREAKFAST RECEIPTS

A STUDENTS' BREAKFAST RECEIPTS	B ADULT BREAKFAST RECEIPTS	C OTHER BREAKFAST RECEIPTS

BREAKFAST PROGRAM COSTS

D VALUE OF FOODS USED (Including Cost of Milk)	E COST OF PAID LABOR	F COST OF SUPPLIES	G MISC. EXPENDITURES FOR EQUIPMENT OR SERVICES	H TOTAL BREAKFAST COSTS

M MILK USED IN BREAKFAST PROGRAMS (Number of ½ Pints)	N NUMBER OF DAYS BREAKFAST SERVED

NUMBER OF BREAKFASTS SERVED

I PAID STUDENTS	J NEEDY FREE STUDENTS	K NEEDY REDUCED PRICE STUDENTS	L NON-PAYING STUDENTS	T TOTAL BREAKFASTS SERVED

NCS Trans-Optic F2960-54321

9

SCHOOL BREAKFAST CLAIM FORM CN-4
INSTRUCTIONS

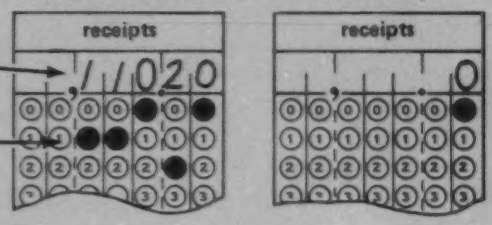
The School Breakfast Claim for Reimbursement is required for reporting a school's month end totals, as taken from the breakfast daily worksheet CN-6, to receive federal assistance for breakfasts served to students.

The claim form covers operations for one calendar month. It is due in the state office by the 10th of the month following the month being reported. Claims or corrections for claims received more than 90 days after a reporting month will not be honored. The column letter and headings are identical to those on the daily worksheet CN-6. Record the totals from the daily worksheet columns in the corresponding column on the claim form.

TO FILL OUT FORM:

Use a No. 2 lead pencil. The identification data may be typed. Care should be taken not to type in the reporting areas.

First write the numbers in the rectangles above the numbered bubbles. Pay particular attention to decimals and commas, such as:



Second, darken in the corresponding bubble below each number, such as:

Third, clearly erase any response that is changed. Completely darken the bubble for each number marked. Data must be recorded in each column. Enter "0" if there is no data to report.

A, B, C:

Failure to report actual receipts as collected each month under each category, and in particular receipts from other agencies or federal programs--such as DPPF, Head Start, service clubs, etc.--could jeopardize eligibility for reimbursement.

D, E, F, G, H:

Record actual costs for food, labor, supplies, equipment and services listed during the period reported. (The value of resources used should be based on actual costs and not on "bills" paid.) Indirect costs will be calculated by the state office using standard formulas.

M:

Record the number of half pints of milk used for the breakfast program. This may be documented by delivery slips, inventory, or breakfasts served. If the school has a lunch program, milk purchased for the breakfast program must be included on forms CN-1 and CN-7 in columns F-1 and F-2.

N:

Count the number of serving days recorded on the breakfast daily worksheet for which breakfasts are served. Normal months are 20-22 days.

I:

Record only the paid or charged breakfasts served students for which money has been or will be received. NOTE: See "L".

J:

Record the number of breakfasts served free to needy children.

K:

Record the number of breakfasts served to needy children at reduced price.

L:

Record only the breakfasts served students who, except when through a policy of the district the children are not charged for their breakfast, would be expected to pay.

T:

Total of all breakfasts served children during the calendar months reported (should equal I + J + K + L).

The school name and IRN, district and county names at the top of the form must be filled out completely and the form signed. The original monthly claim for reimbursement shall be forwarded to the Ohio Department of Education, Division of School Food Service, 65 South Front Street, Room 1009, Columbus, Ohio 43215, not later than the TENTH DAY OF THE MONTH following the calendar month being reported. A copy should be retained by the Board of Education clerk for a permanent record.

Report all summer income and expenditures in the August report. All June claims must be submitted by July 10th. Claims for one fiscal year cannot be paid from funds appropriated for another fiscal year. The last claim submitted should be marked "Final". Summer Type A and/or Special Milk claims through June 30th must be included with the June claim for reimbursement for regular NSL, SM, and Breakfast programs.

CN 2

OHIO DEPARTMENT OF EDUCATION
SCHOOL FOOD SERVICE DIVISION

INVENTORY COST REPORT

"MONTHLY"

Authorized Signature

Phone ___-___-___

School

District

County

PLEASE READ INSTRUCTIONS ON REVERSE SIDE

SCHOOL IRN

July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
March
April
May
June

1975
1976
1977

Original Report

Revised Report

This form must be submitted with Form CN8 (Labor and Other Costs)

1	2	3	4
VALUE OF BEGINNING INVENTORY PURCHASED FOOD (No. 9 - Preceding Month)	VALUE OF BEGINNING INVENTORY GOV'T DONATED FOOD (No. 10 - Preceding Month)	VALUE OF BEGINNING INVENTORY ALL SUPPLIES (No. 11 - Preceding Month)	VALUE OF BEGINNING INVENTORY SPECIAL "TYPE A" SUPPLIES (No. 12 - Preceding Month)

5	6	7	8
VALUE OF FOOD PURCHASED THIS MONTH (Dollar Amount of Invoices or Delivery Slips)	VALUE OF GOV'T DONATED FOOD RECEIVED THIS MONTH (Local Market Value)	VALUE OF ALL SUPPLIES PURCHASED THIS MONTH (From Invoices or Delivery Slips)	VALUE OF SPECIAL "TYPE A" SUPPLIES PURCHASED THIS MONTH (Must be Included in No. 7)

9	10	11	12
VALUE OF ENDING INVENTORY PURCHASED FOOD	VALUE OF ENDING INVENTORY GOV'T DONATED FOOD (Local Market Value)	VALUE OF ENDING INVENTORY ALL SUPPLIES	VALUE OF ENDING INVENTORY SPECIAL "TYPE A" SUPPLIES (Must be Included in No. 11)

NCS Trans-Optic F2959-54321

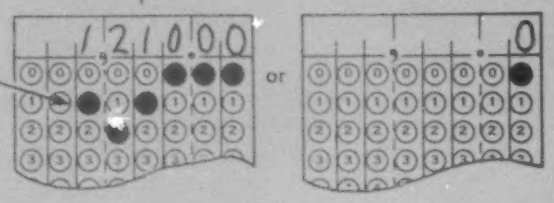
MONTHLY INVENTORY COST REPORT CN-2 INSTRUCTIONS

TO FILL OUT THE FORM:

1. Use a No. 2 lead pencil. Identification information may be typed with care not to intrude into the reporting area. Data must be entered for all items each month. Report must be signed by an authorized person.

2. First, write the numbers in the rectangles above the numbered bubbles. Pay particular attention to decimals and commas, such as:

Second, darken the corresponding bubble below each number, such as:



Third, clearly erase any response that is changed. Completely darken the bubble for each number you mark.

3. Data must be recorded in each column. Enter "0" if there is no information to report.

This form covers operations for one calendar month for each school or food preparation site. The form is required for reporting dollar value of month end inventories and all purchases for the month, in order to justify your claim for reimbursement for Breakfasts, Lunches, and/or Milk. (Must be accompanied by Form CN-8)

The report is due in the state office by the 10th of the month following the month being reported. Reports or corrections received 90 days after a reporting month will not be honored and could nullify your claim for reimbursement.

FILING COMPOSITE REPORTS

Districts that have 2 or more schools, where food service costs are not easily identifiable for each school, (such as a base kitchen transporting food to satellite schools) may report on one composite report for the group. Forms CN-5 and CN-8 must parallel the reporting system used for this report. Report the base kitchen as the group.

Enter the school's IRN in the space provided and darken the corresponding bubble below each digit. Darken the bubble of the month and year of this report and if it is an original or revision of this month.

The form is basically self-explanatory. Refer to the Food Service Reporting and Management Handbook distributed May and June, 1974. Month end inventory, taken the last serving day of each month, is to be extended to total dollar value, and this total dollar value reported under each category of No. 9, No. 10, No. 11 and No. 12. Consult with the state office if there are problems with Central Warehousing.

This report covers all food services for this school including Breakfasts, Banquets and other food service functions.

Value of purchase orders, delivery slips or invoices for supplies or food actually received during a month will be totalled by category and recorded under No. 5, No. 6, No. 7 and No. 8. Be sure to include cost of milk purchased from dairy in item No. 5. Monthly statements from suppliers are not necessary to report these values.

Data for items No. 1, No. 2, No. 3 and No. 4 are the same as data recorded in items No. 9, No. 10, No. 11 and No. 12 for the preceding month.

Government Donated Food is valued at local wholesale prices. Handling charges billed by the state distributing system are included in this wholesale price and are not to be reported as costs.

Special Supplies: Items No. 4, No. 8 and No. 12 are supplies unique to "Type A" transported lunches: such as pre-pack containers, foil, film, baskets, etc. Values entered must be included with the corresponding "All Supplies" data for items No. 3, No. 7 and No. 11 for the month.

You Must Proof the Report - - Beginning Inventory (+) Purchased or Received (-) Ending Inventory (=) Value used for a month. No. 1 + No. 5 - No. 9 = purchased food used, No. 2 + No. 6 - No. 10 = government donated foods used, No. 3 + No. 7 - No. 11 = all supplies used, and No. 4 + No. 8 - No. 12 = special "Type A" supplies used.
The value used must represent the true value of each category actually used or consumed by the food service operation each month and only that month.

The original report shall be forwarded to the Ohio Department of Education, Division of School Food Service, 65 South Front Street, Room 1009, Columbus, Ohio 43215, not later than the TENTH DAY OF THE MONTH following the calendar month being reported. A copy should be retained by the Board of Education clerk for a permanent record.

CN 1

OHIO DEPARTMENT OF EDUCATION
SCHOOL FOOD SERVICE DIVISION

MONTHLY SCHOOL CLAIM FOR REIMBURSEMENT

PLEASE READ INSTRUCTIONS ON REVERSE SIDE

SCHOOL IRN

July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
March
April
May
June

1975
1976
1977

Original Report

Revised Report

Authorized Signature _____

Phone _____ - _____ - _____

School

District

County

School Address

City Zip

MILK PURCHASED (Number of ½ pints delivered from dairy)		G	M	N
F-1 Plain	F-2 Flavored	Milk Served Needy Free Students	Milk used by Adults (No. of ½ pints)	Number of Serving Days

CASH RECEIPTS

A STUDENT LUNCH RECEIPTS	B STUDENT MILK RECEIPTS	C STUDENT A LA CARTE RECEIPTS	D ADULT RECEIPTS	E TOTAL RECEIPTS

NUMBER OF TYPE A LUNCHES SERVED STUDENTS

STUDENTS PAID AND CHARGED			J	K	L	T
H-1 Price No. 1	H-2 Price No. 2	H-3 Price No. 3	Needy Free	Needy Reduced Price	Student Workers	TOTAL Type A Lunches Served Students

NCS Trans-Optic F2958-54321

13

CLAIM FOR REIMBURSEMENT FORM CN-1
INSTRUCTIONS

The claim for reimbursement is required for reporting month end totals for each school as taken from the daily worksheet, form CN-7, to receive federal assistance for the lunch and milk program.

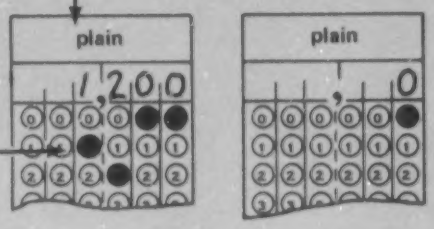
The claim covers operations for one calendar month. It is due in the state office by the 10th of the month following the month being reported. Claims are processed for payment on a first-in, first-out basis. Claims or corrections received more than 90 days after a reporting month will not be honored.

TO FILL OUT THE FORM:

1. Use a No. 2 lead pencil. The identification data may be typed with care not to intrude into the reporting areas.

2. First write the numbers in the rectangles above the numbered bubbles. Pay particular attention to decimals and commas, such as:

Second, darken the corresponding bubble below each number, such as:



3. Third, clearly erase any response that is changed. Completely darken the bubble for each number you mark.

The signature at the top of this claim form certifies that this claim for reimbursement is true and correct, is in accordance with the terms of the school food service agreement with the State Department of Education, payment therefor has not been received, and that records are available to support this claim.

Enter the school's IRN in the space provided and darken the bubbles corresponding with the digits printed above. Darken the bubble of the month and year for which the report is being filed. Darken the bubble identifying this report as either the original submission or a revision for this month.

The column letter and headings are identical to those on the Daily Worksheet CN-7. Total each column on the Daily Worksheet and record the month's totals in the corresponding columns on the claim form.

Data must be recorded in each column. Enter "0" if there is no data to report.

Count the number of serving days recorded on the Daily Worksheet and record this total in column "N". Normal months are 20-22 days.

Receipts are to be recorded on the day they are collected on the daily worksheet. The recorded receipts in columns "A", "B", "C", and "D" equal the month's total receipts. Total receipts may not equal total deposits for a calendar month if deposits of receipts from that month are made in the next calendar month.

The original of the monthly claim for reimbursement shall be forwarded to the Ohio Department of Education, Division of School Food Service, 65 South Front Street, Room 1009, Columbus, Ohio 43215, not later than the TENTH DAY OF THE MONTH following the calendar month being reported. A copy should be retained by the Board of Education clerk for a permanent record.

Report all summer income and expenditures in the August report. All June claims must be submitted by July 10th. Claims for one fiscal year cannot be paid from funds appropriated for another fiscal year. The last claim submitted should be marked "Final". Summer Type A lunch and/or Special Milk claims through June 30th must be included with the June claim for reimbursement for the regular NSL and SM programs.

CN
5.

OHIO DEPARTMENT OF EDUCATION
DIVISION OF SCHOOL FOOD SERVICE
65 SOUTH FRONT STREET RM. 1009
COLUMBUS, OHIO 43215

05 (1 2)
10 (3 4)
03 (5 6)

SPECIAL OCTOBER – MARCH REPORT
SCHOOL FOOD SERVICE PROGRAM

County _____ School _____

IRN [ ] (7–12)

District _____

Address _____ [ ] (13) Original Report

City _____ Zip Code [ ] (14) Revised Report

Authorized Signature _____

Date _____ 19___ Office phone _____

This report should be completed by a principal or administrator knowledgeable about the applications for needy meals as well as the food service equipment inventory. Prepare this report as a group composite total **IF** monthly meal costs are reported that way.

ESTIMATED ELIGIBLE NEEDY

Enter the number of **CHILDREN ELIGIBLE** for:

A. Free Lunches [ ] (15–19)

B. Reduced Price Lunches [ ] (20–24)

C. Special Needy Milk Program [ ] (25–29)

D. Free and Reduced Price Breakfasts [ ] (30–34)

VALUE OF EQUIPMENT FOR DEPRECIATION

E. Value of Preparation and Serving Equipment for this School. [ ] (35–43)

F. Value of Food Service Automotive Equipment for this School. (Delivery Trucks, Vans, etc.) [ ] (44–52)

– SEE INSTRUCTIONS ON REVERSE SIDE –

15

INSTRUCTIONS

Special Report for School Food Service
CN-5

This report is furnished twice a year to school districts for each school participating in the National School Lunch Program, the School Breakfast Program, and the Special Milk Program.

The requested information is required each October and March in order to remain eligible for federal reimbursement assistance for these programs.

Two forms are supplied; they must be completed in full, signed, one returned to the state office **no later than October 25** or **March 25,** and one copy must be retained in the district files.

Estimated Number of Needy Children Eligible

The number of eligible children reported should be the number for whom approved applications are on file. An application should be completed and on file for eligible children whose families have not submitted an application, but whose children have been determined to be eligible for participation under the "Principal's Prerogative" provision of the district Policy Statement.

The Breakfast Program number reported is a combined total of children eligible for free and reduced price breakfasts. It is required to periodically review and update the list of free and reduced price meal recipients.

Value of Food Service Equipment for Depreciation

Refer to your equipment inventory schedule forms FS-14 and 14a.

Report the total value of food service equipment as of October 1 or March 1 for this school. This means that all equipment purchased **since** the **last** report should be added to the inventory list at purchased-installed cost and retained on the list for the next 12 years. (Five years for automative equipment.) Equipment which has reached 12 years maturity since the **last** report would be deleted -- valued at "0".

NOTE: If the district has chosen to report **costs** as a composite of several schools (Such as a central kitchen and its satellites), then this report must also be prepared as a composite for these schools.

Keep up to date daily

1975-76

SCHOOL BREAKFAST PROGRAM

DAILY WORK SHEET

Name of School _____

Month _____

— SEE INSTRUCTIONS ON REVERSE SIDE —

DAY OF MO.	BREAKFAST CASH RECEIPTS				No. of 1/2 Pints Milk (M)
	Children's Receipts (A)	Adults' Receipts (B)	All Other Income (C)	TOTAL BREAKFAST RECEIPTS (R)	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
Totals					

BREAKFAST PROGRAM COSTS

(D) VALUE OF FOODS USED (including milk)

_____

_____

_____

_____

_____

(E) VALUE OF LABOR USED

_____

_____

_____

(F) VALUE OF SUPPLIES USED

_____

_____

_____

(G) Miscellaneous Cost of Services or Equipment

_____

_____

_____

(H) TOTAL COST FOR MONTH _____

17

CN 6.

School _____

IRN _____

OHIO DEPARTMENT OF EDUCATION
DIVISION OF SCHOOL FOOD SERVICE
65 SOUTH FRONT STREET, ROOM 1009
COLUMBUS, OHIO 43215
School Breakfast Program

MONTH _____

County _____

District _____

DAY OF MO.	NUMBER OF BREAKFAST SERVED TO CHILDREN					ADULT Breakfast (O)
	Paid Include charged (I)	Needy Free Only (J)	Needy Reduced Price (K)	Non-paying Student (L)	TOTAL Children's BREAKFAST (T)	
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
Totals						

INSTRUCTIONS

Record each serving day the receipts received and the number of breakfasts served in the appropriate columns.

The number of 1/2 pints of milk used for the breakfast program must be recorded. This amount must be included with "total milk purchased from dairy" on the Lunch Claim for Reimbursement CN-1.

Detailed records of all Breakfast Direct Costs (Food--including milk, paid labor, supplies and miscellaneous expenses) should be maintained. The true cost of a breakfast determines maximum reimbursement for that breakfast in each school.

Nonpaying breakfasts are those served to non-needy children who would be expected to pay but, by board policy, are served without charge. Paid breakfasts are those for which money is or will be received and recorded as receipts.

All Breakfasts for adults should be recorded.

Total each column the last serving day of the month. These totals are needed for the Breakfast Claim for Reimbursement CN-4.

FOOD SERVICE BEGINNING AND CHANGE REPORT

CN-3.

OHIO DEPARTMENT OF EDUCATION
SCHOOL FOOD SERVICE DIVISION

0 3 (1 2)
(3 4)

NATIONAL SCHOOL LUNCH PROGRAM
SCHOOL BREAKFAST PROGRAM
SPECIAL MILK PROGRAM

1975–76

County _____

School _____ IRN 0 (5–10) Date _____ 19 ____

District _____

Address _____

City _____

Zip Code _____

☐ (11) Original Report

☐ (12) Revised Report

Authorized Signature _____

Office phone _____

SEE INSTRUCTIONS ON REVERSE SIDE

1. ADM (13–17)

2. Percentage Attendance rate (18–20)

3. This school is: (mark one)
   - (A) On site kitchen ☐ (21)
   - (B) Satellite of a CK ☐ (22)
   - (C) Satellite of other school ☐ (23)
   - (D) Base kitchen serves others ☐ (24)
   - (E) Reporting as a CK ☐ (25)

4. Lunch Charge to Children (lowest type A charge first)
   - (A) Price No. 1 0 (26–28)
   - (B) Price No. 2 (29–31)
   - (C) Price No. 3 (32–34)

5. Reduced Price Lunch charge to Needy Children 0 (35–37)

6. This school will provide:
   - (A) Lunch Program ☐ (46)
   - (B) Special Milk Program ☐ (47)
   - (C) Breakfast Program ☐ (48)

7. Number of square feet useable floor space for food service in this school (49–54)

8. Charge to Children for Milk
   - (A) Plain 0 (55–57)
   - (B) Flavored 0 (58–60)

9. Charge to **Adults** for Milk 0 (61–63)

10. Milk Cost (Net Charge from Dairy)
    - (A) Plain 0 (64–68)
    - (B) Flavored 0 (69–73)

BREAKFAST PROGRAM

11. Breakfast ADA (AVERAGE DAILY ATTENDANCE) (38–42)

12. Charge to **Adults** for Breakfast (43–45)

13. Breakfast charge to Children 0 (74–76)

14. Reduced Price Breakfast charge to Needy Children 0 (77–79)

BEGINNING AND CHANGE REPORT CN-3 INSTRUCTIONS

This School Food Service Report is provided at the beginning of the school year, to initiate food service in a new school during the school year, or to revise data previously reported. It must be completed before the due date of the first claim for reimbursement. No reimbursement can be made before this report has been received by the State Department of Education.

Use **this form** to notify the state office of changes. It is the school district's responsibility to **resubmit** this form to change data previously submitted. Reimbursement paid to school districts based upon information which has not been kept current will be subject to audit refund.

The form is a **school** or reporting site form and is to be completed for each school submitting a claim for reimbursement. Information reported will always apply to the entire month entered on the form and for all subsequent months until a change is submitted. The school name, IRN number, district name, etc. must be completed in full, and the report **must** be signed.

The answer blanks are "right oriented" so **please** observe the decimal points and commas.

1. ADM -- Enter the most current average daily membership (students under 21 enrolled) available -- including kindergarten students.
2. Attendance Percentage -- Enter the average percentage of ADM in attendance. **NOTE** the decimal point. (State average is about [9.2.8])
3. Check **ONE** block that indicates the preparation site for food service for this school.
4. Lunch Charge to Children -- Enter the lowest "Type A" price to students in "A". Enter a next higher price in "B" and the third in "C" if applicable. (Such as [0.4.5])
5. Reduced Price Lunch Charge -- Enter the price charged needy students eligible for a reduced price "Type A" lunch. Cannot exceed 20¢.
6. Enter an "X" beside the program or programs that will be provided in this school for which you are seeking federal assistance.
7. Number of Square Feet -- To determine usuable square feet, measure the length and width of the floor of the preparation, serving and dining areas, and storage and refrigeration floor space. Do not include hall corridors or stairs. Multiply the length times the width for each area, add the totals and enter on report. Dining areas used for other academic purposes must be pro-rated accordingly on a time used basis. If students must eat in their classroom, **do not** count the classroom floor space.
8. Charge to Student for Milk -- Enter the charge to students for a ½ pint of milk. (Such as five cents -- [0.05])
9. Charge to Adults for Milk -- Enter the charge to adults for a ½ pint of milk. Charge must equal or exeed the "full" cost. (Direct cost + indirect cost)
10. Milk Cost -- The dairy price per ½ pint of milk. Must be a "four-place" figure.
    (Examples: [0.0.9.2.5] [0.1.0.3.3] [0.1.1.0.0])

BREAKFAST PROGRAM

11. Breakfast Program Average Daily Attendance -- Average number of students that could attend the breakfast program being provided. Would equal #1 ADM (X) #2 Attendance % if breakfast program is available to all students in the school.
12. Charge to Adults for Breakfasts -- Must equal or exceed "full cost" of breakfast including beverage.
13. Breakfast charge to students -- Enter price charged paying students.
14. Reduced price breakfast charge -- Charge to needy children eligible for a reduced price breakfast. (Cannot exceed ten cents -- [0.1.0])

Prepare in duplicate each time it is submitted, and retain one copy in district's files.

Send original of the beginning report by September 2, 1975, to the Ohio Department of Education, Division of School Food Service, 65 South Front Street, Room 1009, Columbus, Ohio 43215. Send changes as needed throughout the year.

INSTRUCTIONS FOR COMPLETING DAILY WORKSHEET CN-7

Enter data on this form daily, under the appropriate column. The form provides columns for sufficient data for adequate accountability of the school lunch and milk programs plus a la carte and adult information for one month. Recording more data than that provided for on the form is not necessary.

Identify the county, month, district and school.

Record receipts the day they are collected. Record lunches the day they are served.

A. Include only actual receipts for all children's complete Type A lunches the day they are collected. The receipts for a charged lunch should be recorded on the day received.

B. Receipts from the sale of milk to children. (Noon, recess, kindergarten, etc.)

C. Receipts from children for all a la carte sales. Include extra items purchased with a Type A lunch, partial lunches, desserts, ice cream, etc.

D. All receipts from sales of food and beverages to adults during normal school day. Do not include banquets. There is no legal provision for charging food services to adults.

E. Total receipts should equal columns A+B+C+D.

F-1, F-2. Record the number of half-pints of milk purchased from the dairy on the day delivered under either plain or flavored. Record milk shake mix on day delivered by converting to 16 half-pints per gallon of mix purchased. Include milk purchased for breakfast program and kindergarten. Milk purchased in 5-gallon, gallon, and half-gallon containers should be converted to half-pints and recorded.

G. Record the number of half-pints of milk served to needy students who are eligible for free meals.

H-1, H-2, H-3. Record the number of paid or charged Type A lunches served students starting with the lowest price under H-1, the next higher price under H-2 and highest price under H-3.
Record a charged student lunch the day it is served.

J. Record the number of lunches served free to eligible needy students.

K. Record the number of lunches served to eligible needy students at a reduced price--must be priced no more than 20¢ and less than regular lunch charge to children.

L. Record all non-paying student workers and other lunches served free to students other than those recorded in "J" and "K". (Needy students working in lunchroom are recorded under the appropriate columns.)

T. Total of all student lunches served. (Columns H-1 + H-2 + H-3 + J + K + L. Verify this count by tabulation, or tray count, or portions prepared, etc.)

M. Record all milk consumed by adults under total column. Include milk served with adult lunches, extra milk sold to adults, milk consumed by cooks and milk used with coffee. The two columns without headings may be used as desired.

Total each column after the last serving day of each calendar month. These totals are used to complete the monthly school claim for reimbursement--form CN-1.

SCHOOL LUNCH AND MILK PROGRAM

DAILY WORK SHEET 1975 – 76

–Keep up to date daily –

Name of School _____

Month _____

DAY OF MO.	NUMBER OF LUNCHES SERVED TO CHILDREN (Include Type A lunches only)							MILK used by ADULTS (Half Pints)		
	Children's Paid Lunches (Include charged)			Needy Free	Needy Reduced Price	Non-paying Student Workers	TOTAL Children's TYPE A LUNCHES			
	price (H–1)	price (H–2)	price (H–3)	(J)	(K)	(L)	(T)		(M)	TOTAL
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
total										

Record all Lunches the day they are served. List **ALL** Milk consumed by adults. Verify this count by tabulation, or tally count, or portions prepared, etc.

CN 7

SCHOOL FOOD SERVICE PROGRAM

DAILY WORK SHEET 1975 – 76

LUNCH AND MILK PROGRAM

County _____

Month _____

District _____

School Building _____

DAY OF MO.	CASH INCOME Record daily as collected.					SPECIAL MILK PROGRAM		
	Children's Lunch Receipts (A)	Children's Milk Receipts (B)	Children's Extra's – a la carte Receipts (C)	All Adult Receipts (D)	Total Receipts (E)	Milk Purchased From Dairy (No. of ½ Pints) Plain (F-1)	Milk Purchased From Dairy (No. of ½ Pints) Flavored (F-2)	Needy Free Milk (G)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
total								

Sum of these columns should equal total deposited

Total uncollected lunch charges on last day of month: Students $_____ Keep up to date daily.

23

ACCESSION NUMBER: VT103506

PUBLICATION DATE: 30JUN76

TITLE: SCHOOL BASED JOB PLACEMENT SERVICE MODEL. FINAL REPORT, 1975-76.

PERSONAL AUTHOR: FEHNEL, BARRY J.; GRANDE, JOSEPH J.

DESCRIPTOR: *JOB PLACEMENT; *SCHOOL SERVICES; *BUSINESS EDUCATION; PROGRAM DESCRIPTIONS; *MODELS; SCHOOL COMMUNITY COOPERATION; COOPERATIVE EDUCATION

IDENTIFIER: PENNSYLVANIA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 29P.; RELATED DOCUMENTS VT 103 507 THROUGH VT 103 509 IN THIS ISSUE.

ABSTRACT: THIS REPORT DESCRIBES A SCHOOL-BASED JOB PLACEMENT SERVICE MODEL FOR BUSINESS EDUCATION STUDENTS AND GRADUATES OF THE READING-MUHLENBURG AREA VOCATIONAL-TECHNICAL SCHOOL. IMPLEMENTATION INVOLVED: FAMILIARIZATION BY THE JOB PLACEMENT SPECIALIST OF ALL ASPECTS OF THE BUSINESS EDUCATION CURRICULUM, ESTABLISHMENT OF WORKING RELATIONSHIPS WITH THE BUREAU OF EMPLOYMENT SECURITY, THE COOPERATIVE EDUCATION COORDINATORS, AND TRAINING STATION EMPLOYERS, COLLECTION OF STUDENT DATA, JOB DEVELOPMENT, PREPARING STUDENTS FOR JOB INTERVIEWS, CLASSROOM PRESENTATIONS, PLACEMENT, AND FOLLOWUP. THE REPORT INCLUDES A REVIEW OF THE RELATED LITERATURE THAT SUPPORTS A NEED FOR A SCHOOL-BASED JOB PLACEMENT SERVICE. STUDENT OBJECTIVES LISTED ARE WORK EXPERIENCE, WAGE EARNING, DEVELOPMENT OF GOOD WORK HABITS AND ATTITUDES, AWARENESS OF THE DIGNITY OF WORK, AND INCREASE OF SELF-ESTEEM. SPECIFIC DUTIES OF THE JOB PLACEMENT SPECIALIST ARE LISTED, AND AN OUTLINE FOR JOB PREPARATION MATERIALS APPEARS. THE RESULTS OF THE FOLLOWUP EMPLOYMENT REPORT OF THE 1976 GRADUATES IS ALSO INCLUDED. (NJ)

INSTITUTION NAME: READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL, READING, PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPT. OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 506

FINAL REPORT

1975-76

School Based Job Placement Service Model

Reading-Muhlenberg Area

Vocational-Technical School

(Project No. ~~20-4028~~ 20-5803)

Submitted By

Barry J. Fehnel

Job Placement Specialist

Joseph J. Grande

Coordinator of Industry

READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL

June 30, 1976

Pennsylvania Department of Education

Bureau of Vocational Education

Research Coordinating Unit

VT 103 506

TABLE OF CONTENTS

I. Preliminary Pages

A. Introduction 1

B. Implementation 2

II. Introductory Section

A. Problem 7

B. Related Literature 8

C. Objectives 11

III. Recommendations 12

IV. Appendix

A. Role of Job Placement Specialist 15

B. Sundry Job Preparation Materials 16

C. Employment Report 1976 Graduates, July ... 17

V. Supplemental Forms 21

1. Christmas Card

2. Birthday Card

3. Employer's Rating Card

INTRODUCTION

The school-based job placement service was established to fill a void in the business education and vocational education process. Much time and effort has been devoted to training students in business education and the vocational-technical areas. These students are well trained for entry-level positions upon completion of their high school training. The problem develops as these young people begin to enter the labor market. They are suitably trained for entry-level jobs but have little or no training or help in finding employment. The result is that although there may be jobs in areas related to their training, many students eventually find employment in unrelated areas. It is thought that the most effective means of helping graduates find employment in areas related to their training is through a school-based job placement service.

Implementation

The school based job placement service model was implementated at the Reading-Muhlenberg Area Vocational-Technical School on February 11, 1974 with the employment of the job placement specialist.

We are continuing the implementation of our orientation to the four sending schools. It was determined that since the placement specialist had not previously been on the four sending schools staff, he should attempt to become familiar with all aspects of their school curriculum. This was done by touring the schools and spending some time with each instructor to get an in-depth evaluation of the business education program. It is obvious that if the job placement specialist is going to sell the students to local employers he should be reasonably well versed as to the level of training and potential of the graduates. This orientation to the school took up much of the time during the first six weeks of the program.

The school based job placement service is a cooperative effort between the school and the Bureau of Employment Security. Frequently we meet with representatives of the B.E.S. to keep a good working relationship with our contact person and the B.E.S. office.

This program has developed an excellent working relationship with the Bureau of Employment Security. Graduates of our school will undoubtedly benefit through the close cooperation of both organizations.

A great amount of time was devoted to working with the cooperative education coordinator and the employers at the training station which he has developed. It was thought that since the placement service will be dealing with these same employers, we should become familiar with their operations. Also, it was concluded that most of these training sites would eventually develop into full time jobs upon graduation.

It was apparent that if we were going to be placing graduates in jobs we would need various types of information on each individual. We determined the types of information we would need which includes personal information as indicated on the data sheet, ratings as to their employability (from their instructors), and an indication as to their post graduation plans. With this information, we know if a student plans to go to school, enlist in the military, look for work either related or unrelated to their area of training, stay at home and not seek employment, etc. The rating sheets are of particular value when the instructors leave for the summer and we are unable to get a personal recommendation from them.

The current economic conditions forced us to devote additional time to job development. Going out to contact potential employers is possibly the most important aspect of the placement service. We have found that in general, some employers are still somewhat uninformed of the capabilities of the Vo-Tech School and the competencies of its graduates. They are normally most receptive and eager to learn more about our programs. We have found that it is not too difficult to convince an employer to employ a Vo-Tech graduate if he has an opening in an appropriate area. It is obvious that when an employer is going to hire a Vo-Tech graduate for the first time we want to make sure that the person or persons we refer will be able to adequately handle the job. If the employer's first experience is unpleasant or unrewarding, we cannot expect him to return to us as subsequent openings arise.

We feel the preparation for the preemployment interview is most important. Our students have a skill and can make a positive contribution to our selected employers if they have the opportunity to demonstrate this skill, attitude and knowledge. Therefore, we devote one week in intensive preparation for the senior co-op interview. This is over and

above the classroom instructions directions. To assist us we use the following:

1. Job Hunting: Where to Begin
2. What You Should Know Before You Go To Work.
3. Your Job Interview.
4. Job Attitudes: Trouble at Work.
5. Job Attitudes: Liking Your Job and Your Life.
6. Job Attitudes: On the Job, Four Trainees.
7. Employment Booklets (2)

In addition to the senior preemployment preparation interview the following materials were used for classroom presentation to all Business Ed seniors and our Special Co-op A and B Students.

1. Consumer Credit Guide For Buying On Time
2. Truth In Lending
3. Automation
4. Economic Man vs Social Man
5. The National Debt
6. The New Poverty
7. The Four Hats of The Federal Reserve
8. Gold
9. Inflation and/or Unemployment
10. The Price System
11. The Mystery of Economic Growth
12. The Growth of Government
13. Making the Most of Your Money
14. Money: Master or Servant
15. Inventory of Valuable Records and Personal Papers
16. The Travels of a Check
17. The Story of Checks
18. Student Practice Checkbook
19. The Name of the Game is Money
20. Pennsylvania Banking: It's Role in American Progress
21. Banking Is Your First Step in Financial Management
22. Your Pennsylvania Banks
23. Personal Money Management
24. Women and Her Bank
25. Bank Services For You
26. Get Involved in Banking
27. Banking, An Opportunity For You
28. Policies For Protections
29. A Date With Your Future
30. You And The Investment World
31. How To Get A Job
32. How To Prepare Yourself For Job Interviews

As time has passed, it has become evident that the functions of the placement service overlap with those of the other co-op instructors. We all make contacts with potential employers. The co-op instructors make

contacts to find and develop training stations and to follow-up students as they graduate. Also, they work extensively seeking part time and summer jobs for students. They have been quite involved with co-op job placement and follow-up. Since we started, the job placement specialist worked primarily with pre-employment preparation-job placement and follow up, and did a substantial amount of career counseling.

The follow up component of the job actually begins the first Christmas after graduation. We mail Christmas cards and enclose a response card to be filled out by the student and returned. This gives us an idea of what the student is doing. It is expected that by that time most students will have found a situation of a relatively permanent nature, i.e. full time employment (related or unrelated), school, service, staying at home, etc. These results will be tabulated during January. From these follow up forms we will also be able to determine which students need or desire additional help in finding employment. We also have a one and three year follow-up by enclosing a response card when we mail the graduate's birthday card. The feedback facet of the job will be conducted on a year round basis. We will be continuously trying to determine what types of skills local employers need. Attempts will be made to determine which areas we are over training and in which we are undertraining. As this information is gathered it will be possible to make appropriate adjustments in the curriculum at the school. The manner in which feedback information will initially be gathered will be through personal interviews with employers and a mailing questionnaire.

The co-op and job placement functions of the placement service will take place primarily in January. This is when students are available for part-time employment and hopefully leading to full time positions. October and November will be devoted to student interviews and job preparation

instructions. The month of December will be devoted to finding jobs for the students.

It has become obvious that placement activities can be conducted much more smoothly while school is still in session. Once the students graduate they scatter in many directions. As job openings become available after graduation it is frequently quite difficult to get in touch with the most qualified graduates to refer them for the jobs. Frequently as many as three to five phone calls over a period of several days are required just to determine if the individual is interested. Many times we resort to a letter in a final attempt to contact our graduates. Hopefully, as we place more and more people in jobs, additional students will continue to use our services after graduation. The problem of not being able to contact graduates will be overcome if it becomes known that we can help them and they keep in closer touch with us.

We have men with the executive director of the Chamber of Commerce of Reading and Berks County. Many of the initial contacts from employers who might be considering locating in Reading are channelled through the Chamber. We have offered to be of assistance to them. The Chamber has sent out information about our placement service to all their members to let them know that our services are available.

Problem

Although many evaluation studies of vocational education have found systems for job placement services inadequate or nonexistent, little if any effort has been extended to eradicate this dilemma. The seriousness of the problem is amplified when one examines the national employment statistics. At present there is a total unemployment rate of 7.3 per cent of the labor force.

After analyzing the problem it is evident that higher unemployment rates exist for teenagers, blacks and women. The rates of unemployment have increased since April, 1969.

Related Literature

One criticism of vocational education at the secondary level has been the lack of attention given to job placement. This component of student personnel service program is unstructured in many instances and non existent in others. Critics from within vocational education and those on the outside have been pointing to this inadequacy for sometime. Venn (1964) suggests that job placement practices exist at the high school level are ineffective or nonexistent, although the need is acute and complex. Further, he recommends: "high schools, two-year colleges, universities and state departments of education should encourage employers to make greater use of the placement offices of educational institutions (p. 174)"

In section 143 of Part D of the 1968 Amendments, it states that exemplary programs should be developed for all students that involve intensive occupational guidance and counseling during the last years of school and for initial job placement.

Rosen (1970) states that counselors must take a more active role in helping young people make the transition from school to work. H specifically alludes to the fact that counselors must act as change agents by recommending to employers whose hiring standards are not valid that they should be modified. Although one can concur, the question of whether counselors are sufficiently aware of occupational information is questionable, specifically at the local level. Venn (1964) offers support by stating:

The failure of educators to understand the relation-

> ship between their work and the future occupational role of their students has inhibited the development of vocational guidance, placement and follow-up despite pleas, recommendations and studies to the contrary (p. 149).

Further support is offered by Froehlich (1950) when he concludes a placement service model in schools is essential. He bases this on his belief that students need and deserve help in taking action upon their decisions. He states, "the school has a unique opportunity to assist students to find their proper place (p. 229)."

A somewhat similar position is offered by Rosen (1970) who concludes;

> If counselors are to become a part of the linkage system between school and work, they will have to change their posture from "neutral" sources of occupational and job information to active developers of information and to participants in the job seeking process.

Humphries and Trexler (1954) considered placements as ". . . the last practical step in the formal educative process--a step that helps to make the student's education effective socially (p. 237)."

The success of a project in vocational guidance and job placement for culturally deprived high school youth was attributed to a significant degree to the development of relationships with schools, business, labor, students and other agencies (Vocational Guidance Service, 1969). Evidently this form of activism is what should replace the neutral roles of the pupil personnel services staff in order to produce effective results. Effective results being in part successful job placement. However, the volume of placement is not the ultimate evaluation for job placement. Zanzalari (1960) found that

the lack of adequate criteria for evaluation was evident in the placement function of the student personnel service program.

In summary, it appears that most public secondary schools do not have a definitive structure within the student personnel service program to effectively provide all students with strategies and procedures for effectively obtaining a job. It is clear that past and current literature reflect a need to establish a program of job placement for all students. This program should provide for channels of communication among school personnel with employers, the state and local employment service and community agencies to obtain occupational information which can be used to provide strategies and procedures for the job placement of all students.

Objectives

The general objective of the program is to give the student an exposure to the world of work so he may learn the dignity of work and develop the proper attitudes and characteristics for it.

Specific objectives of the program are to encourage and to develop specific skills in which the student-learner demonstrates aptitude and interest.

To improve and expand the technical-vocational schools classroom, the student-learner who will participate in the program may expect to:

1. Work experience in a career objective occupation.
2. Earn a wage while he learns a skill.
3. Develop good work habits and attitudes.
4. Learn desirable personal traits.
5. Become more aware of the dignity of work.
6. Develop greater self-esteem, leading to more self-confidence.
7. Learn how to handle money.
8. Develop a greater awareness of the economic, social, and personal relationships necessary for successful participation in the working world.

The employer who participates in the program may expect:

1. A local supply of future employees properly oriented to the world of work.
2. Participation in the planning of the student's training plan.
3. Assistance in training the student in the particular manner requested by the employer.
4. Use of guidance and testing techniques which may bring to light a student's hidden talent.
5. Advantages of learning about new training techniques from the teacher-coordinator.

Recommendations

We all know how important it is for all individuals to be happy with their job. When you have this fact in mind you can see how important the job placement program is for the overall student education. The objective of the job placement specialist becomes more and more involved with matching the student with the job and not just a placement of the student on a job.

It must be remembered that today, in Berks County, there are over five thousand (5,000) employers, four hundred (400) of which are major firms, employing as many as three thousand (3,000) employees. Consider, then, the contacts that must be made with these firms all year round, not only to maintain our current job placement relationship but to enlarge it in the future. Public relation visitation work is the same as advertising and as any wise company knows, once you stop advertising sales go down.

Everyone is aware of the current tight labor market, not only in our area, but the nation as a whole. You must remember that only so many students can be absorbed, and now, with the unemployment in Berks County over 7 per cent, job competition becomes even more severe. Our students are always competing with sixteen other county high school students. So, therefore, if I do not see an employer ... at least periodically ... certainly one of the other school's representatives will, which may result in the loss of job orders for Reading and Muhlenberg District Schools. With this in mind, most of my time has been spent in job development and less time in one of my other functions.

This school year 1975-76, Reading High School Business Education students were ready for their cooperative Work Study Program. This involves over one hundred twenty (120) seniors. Couple this figure with Reading-Muhlenberg AVTS, Muhlenberg, Central Catholic and Holy Name High Schools and the figure approximates seven hundred (700) students! That's seven hundred (700) students needing Job Placement Service.

In conclusion, as of today, Job Placement is at the top of the priority list for the State of Pennsylvania, with plans to expand the overall state level projects by providing funds for other project sites.

The Job Placement program is as important as any of the instructional areas in the school system. Once we train the student in an academic or vocational field, we should not drop the student upon graduation. We all know graduation is one of the most important events because then for the first time, the student must face the World of Work. In the past, (before Co-op or Job Placement) very little preparation time was given to students. How to contact an employer, or how to sell his skills on an interview, or how to fill out an application form, was always left to the discretion of the student. This, to many employers, reflected on the school and its teachers. Keeping this in mind, job placement should be part of the overall education system.

In addition, I feel our program could grow to a much larger program by just extending this service to Adult Evening School at the Vo-Tech and home schools. Most evening school students are attending classes to either improve their skills for advancement in their present field or training for a new field. Since I have been at my present job as Job Placement Specialist, I have received job orders from our current employers that hire our daytime students,

Also, I cannot think of a better way to give service and build up a good rapport with the general public (Our Tax Payers).

THE ROLE OF THE JOB PLACEMENT SPECIALIST

AT READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL

Specific Duties.....Job Placement of Business Education Students

1. Preparation for the pre employment interview.

2. Develop and put into operation a job placement program for students on a part-time or full-time basis.

3. He shall maintain close contact with industry and coordinate and assist in placing students in employment or advanced schooling.

4. He shall, while in contact with industry, determine the needs of the employer and employee for future curriculum development.

5. Develop and operate an employer follow-up program.

6. He shall develop and maintain constant follow-up of graduate students to ascertain their progress and secure information from them as to the relative effectiveness of the curriculum.

7. Organize a Craft Committee.

8. Meet with Craft Committees along with the teachers of the Business Education programs in an effort to gain an insight into each area of instruction.

9. Develop a plan whereby suitable occupational information will be filtered into the participating schools in the amounts needed and to the person to whom you are directed to forward the materials.

10. Have an awareness of public relations opportunities for the sending schools and the Vo-Tech school.

11. Develop a plan and put into operation an open exchange of philosophies in regard to the Business Education programs at the home schools and the Basic Data Processing, Keypunch and Computer operation of the Vo-Tech school.

12. We should be fully aware that the diversified duties of the position at times will not be confined to the normal school day.

SUNDRY JOB PREPARATION MATERIALS

Mr. Grande and I prepared and implemented the following with all vocational students.

COOPERATIVE EMPLOYMENT
BOOKLET

TABLE OF CONTENTS

1. TO THE STUDENT

2. A REVIEW OF THE CO-OP JOB

3. THE RIGHT JOB FOR YOU

4. APPLYING FOR YOUR CO-OP JOB

   a. Preparing for the Interview
   b. The Personal Inventory
   c. The Day of the Interview
   d. The Employment Application
   e. Employment Tests
   f. The Interview Itself

5. BEFORE YOU REPORT TO WORK--OBTAINING WORKING PAPERS

6. THE WORK PHASE OF COOPERATIVE OFFICE EDUCATION

7. HOW TO SUCCEED ON YOUR CO-OP JOB

   a. The Employer Rating

8. SOME ADDITIONAL SUGGESTIONS FOR ACHIEVING SUCCESS

9. YOUR RESPONSIBILITIES AS A CO-OP STUDENT

   a. To Yourself
   b. To Your School
   c. To Your Teacher
   d. To Your Employer

10. WORK EXPERIENCE PLAN ASSIGNMENTS, ETC.

READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL

MEMORANDUM

TO: JOINT SCHOOL COMMITTEE
PRINCIPALS
GUIDANCE COUNSELORS
OTHERS

FROM: DR. JACK D. NEAL, SUPERINTENDENT
MR. CARL E. STRITTMATTER, SUPERINTENDENT
MR. CHARLES H. MATTERS, DIRECTOR OF VOCATIONAL EDUCATION
MR. JOSEPH J. GRANDE, COORDINATOR OF INDUSTRY

DATE: JULY 6, 1976

SUBJECT: EMPLOYMENT REPORT 1976 GRADUATES

Since our Employment Report of June 2, 1976 we have contacted the unemployed graduates by phone and mail and the attached report is a breakdown by Instructional Area indicating the number of graduates directly employed, number of graduates employed related and non-related, those graduates that plan to further their education or enter the armed forces and the number of graduates not available for work. Also those that are unemployed.

In reference to the Job Outlook picture as shown in the June report, our findings now qualify the pleasure and encouragement we indicated.

The average starting wage is estimated at $2.57 an hour, based on available information. The combined gross annual income of those going directly into employment will be in excess of $2,202,699.20*.

The educational development and the work skills imparted by our fine staff will enrich the lives of our graduates.

*Based on average prevailing wage rate of employed seniors.
40 hour week, 52 weeks at $2.57 average wage per hour.

20

17

SUBJECT: JOB PLACEMENT REPORT. 1976 GRADUATES

In today's world of work, people with saleable skills are the ones getting the jobs. That's why skill equates with employment.

Our basic cooperative work program is for twelfth grade students of the Reading-Muhlenberg Area Vocational-Technical School. This means a properly qualified student is released from his instructional area for employment at an occupation directly related to the class in which he or she is enrolled. This placement station is an extension of the classroom. Therefore, only the better seniors are recommended to take advantage of this outstanding educational opportunity.

By following these guide lines Reading-Muhlenberg AVTS has enjoyed an excellent reputation throughout the community for the quality possessed by their graduates. The community business people are aware that when we recommend a student, he possesses the necessary entry level skills.

Business Education students

Of 206 senior students, 110 are employed or committed to post high school training. This represents better than 53% of our Business Education students.

Special Co-op Program

In our Special Co-op Program we have had 29 seniors working and 30 underclassmen on the job. We have 33 students on the class rolls and we have 23 students awaiting entrance into the program.

READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL

Senior Student Placement Report

July 6, 1976

YEAR	NUMBER OF STUDENTS	DIRECT	EMPLOYED RELATED	NON-RELATED	POST H.S. TRAINING	ARMED FORCES	UNEMPLOYED	PERCENTAGE PLACED
Class of 1972 GRAND TOTALS June 25, 1972	295	137	31	37	36	22	32	90%
Class of 1973 GRAND TOTALS June 6, 1973	364	223	17	41	24	12	47/14*	91%
Class of 1974 GRAND TOTALS June 6, 1974	331	202	22	26	12	13	34/22*	90%
Class of 1975 GRAND TOTALS July 8, 1975	351	151	13	71	25	29	53/9*	85%
Class of 1976 GRAND TOTALS July 6, 1976	344	162	10	47	30	24	53/18*	85%

*Not available for employment

READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL

Senior Student Placement Report ..... July 6, 1976

EMPLOYED

INSTRUCTIONAL AREA	NUMBER OF STUDENTS	DIRECT	RELATED	NON-RELATED	POST H.S. TRAINING	ARMED FORCES	UNEMPLOYED	NOT AVAILABLE FOR EMPLOYMENT
Air Conditioning & Sheet Metal	11	4	1	3	0	3	0	
Appliance Repair	10	4	0	0	0	2	3	1
Auto Body Repair	7	2	1	1	1	1	1	
Architectural Drafting	11	3	0	1	5	1	1	
Automotive Trades	13	9	0	2	0	1	1	
Business Data Processing	5	5	0	0	0	0	0	
Cabinetmaking	15	9	0	3	1	1	1	
Carpentry	17	10	0	2	0	2	2	1
Chemical Technology & Instrumentation	4	0	0	2	2	0	0	
Commercial Art	11	2	2	1	2	0	2	2
Computer Programming Data Processing	9	4	0	0	1	0	4	
Cosmetology	17	3	0	5	1	1	6	1
Distributive Education	17	10	0	0	2	1	2	2
Electrical Maintenance & Construction	16	6	0	6	0	1	2	1
Electronic Technology	10	1	0	0	6	2	1	
	173	72	4	26	21	16	26	8

83

READING-MUHLENBERG AREA VOCATIONAL-TECHNICAL SCHOOL

Senior Student Placement Report ..... July 6, 1976

EMPLOYED

INSTRUCTIONAL AREA	NUMBER OF STUDENTS	*DIRECT	RELATED	NON-RELATED	POST H.S. TRAINING	ARMED FORCES	UNEMPLOYED	NOT AVAILABLE FOR EMPLOYMENT
Engineering Drafting & Design	13	4	0	4	3	1	1	
Food Service - Baking	7	5	0	0	0	0	0	2
Food Service - Chef Practice	11	6	1	0	0	0	3	1
Health Assistant	13	11	0	0	1	0	0	1
Keypunch	16	8	0	1	1	0	6	
Letterpress Printing	6	1	0	1	0	1	3	
Machine Shop Practice	11	7	0	2	0	0	2	
Motorcycle, Outboard Motor, Garden Tractor Repair	16	6	3	0	1	3	3	
Offset Printing	14	9	0	3	1	0	1	
Plumbing & Heating	15	9	0	3	0	0	3	
Textiles & Clothing	20	10	0	4	2	0	0	4
Trowel Trades	13	4	0	3	0	1	5	
Upholstery	5	2	0	0	0	1	0	2
Welding Metal Fabrication	11	8	2	0	0	1	0	
	171	90	6	21	9	8	27	10
TOTALS	344	162	10	47	30	24	53	18

QL 600 30

REMARKS

Date .....Signature .....

FOLD, STAMP, MAIL

PROGRESS REPORT FOR RATING PERIOD NO.....

RETURN IMMEDIATELY

Student .....Inst. Area ..... Home School .....

RATING SCALE: A-B-C-D-F-.

A—Excellent
B—Good
C—Average
D—Fair
F—Poor

ATTITUDE ☐ SKILL ☐ KNOWLEDGE ☐ OVERALL ☐

Number of days absent.....

Co. Representative .....

Company Name

25

Mr. Joseph J. Grande
Reading-Muhlenberg Vocational-Technical School
P. O. Box 3068
Reading, Pa. 19604

FOLD

(DO NOT DETACH)

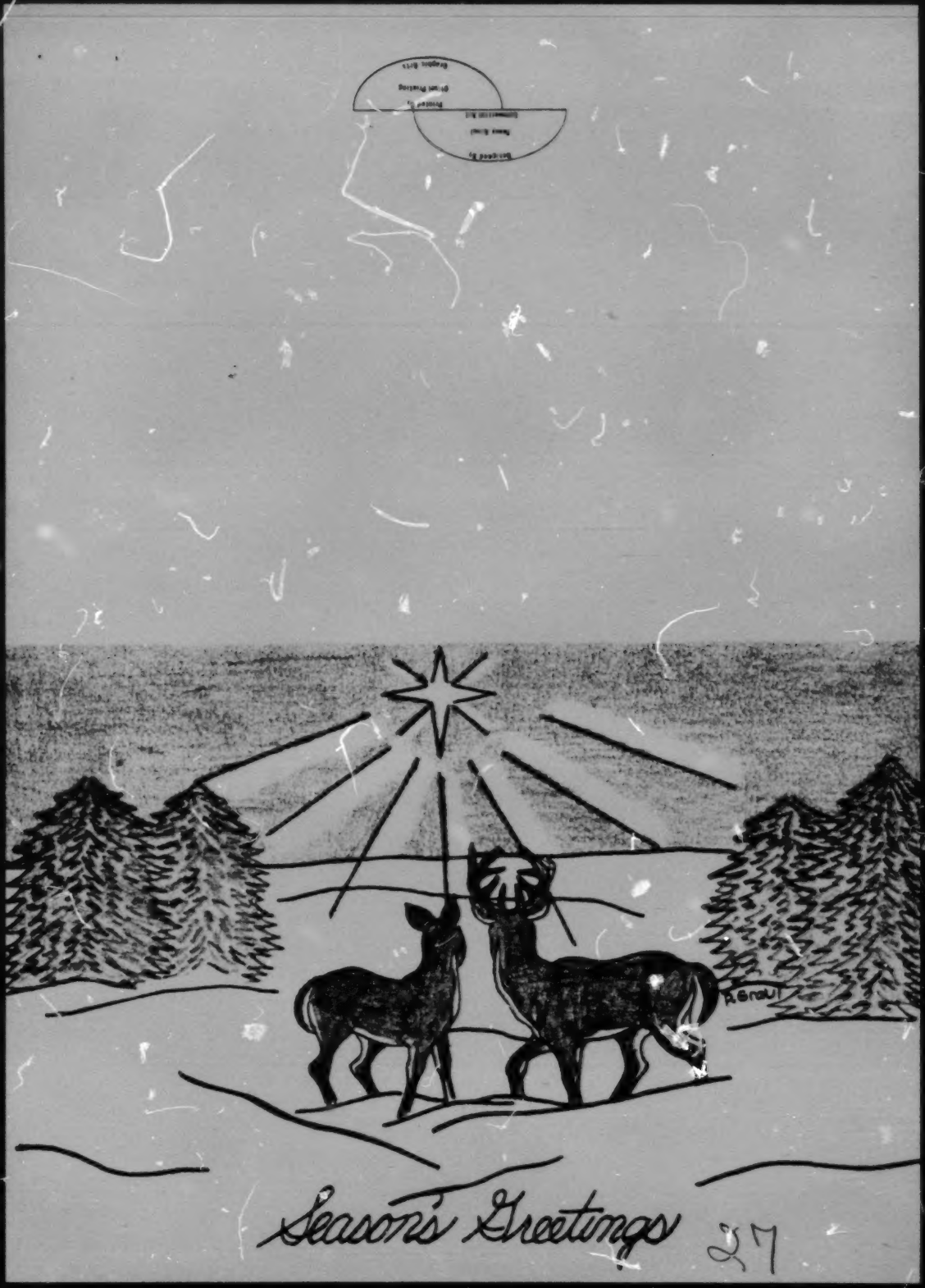
Pupil progress for students enrolled in the Vocational-Technical Cooperative Educational Program is measured by a rating scale developed by the Vocational-Technical School. The rating instrument pays particular attention to:

ATTITUDES (A)—This encompasses the student's overall approach to the subject matter and his philosophy of the trade as well as his ability to work with other people.

SKILL (S)—This applies to his ability to apply his knowledge in a practical, rather than a theoretical sense.

KNOWLEDGE (K)—This applies to the student's knowledge of the subject matter.

OVERALL (O)—This is a combination of the above grades.



27

Through all your days,
may the light of good
fortune shine on you.

We wish one and all
a very Merry Christmas.

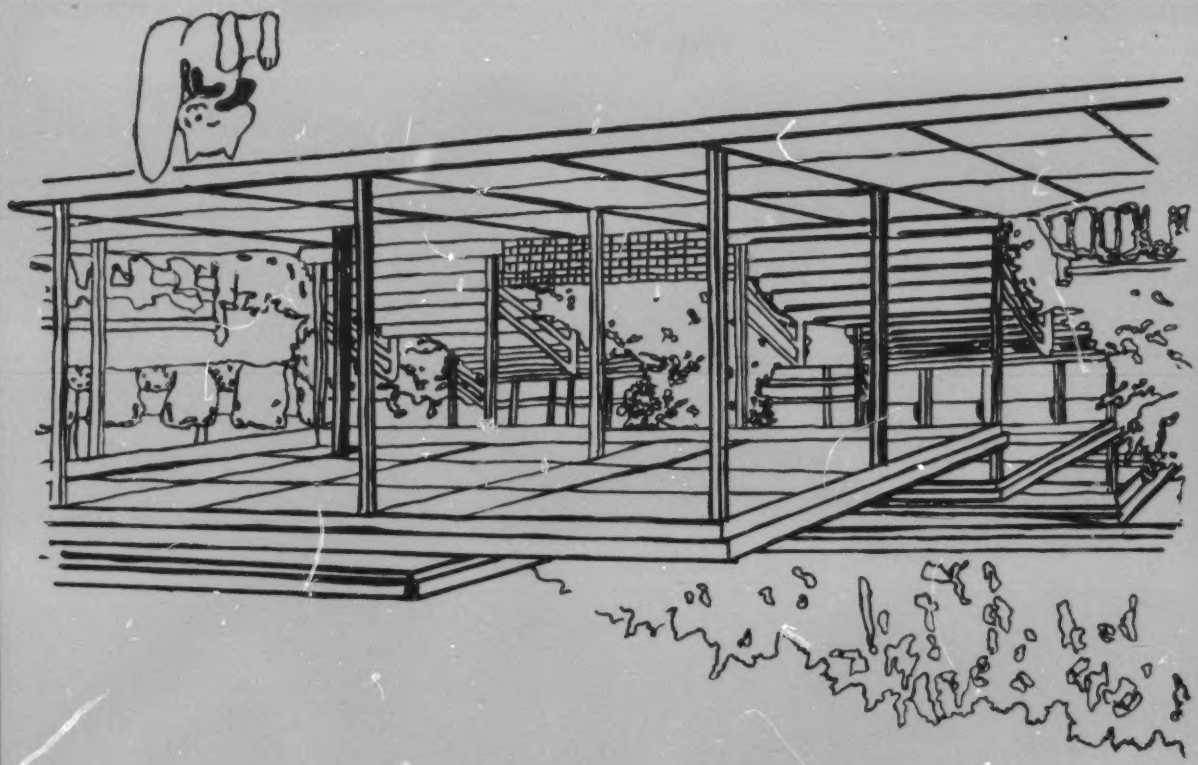
Reading-Muhlenberg Vo-Tech

28

To wish you joy
To wish you cheer
For every day
Through the year

HAPPY BIRTHDAY

29



SRS

DESIGNED BY S. SNYDER

COMMERCIAL ARTS

PRINTED BY GRAPHIC ART

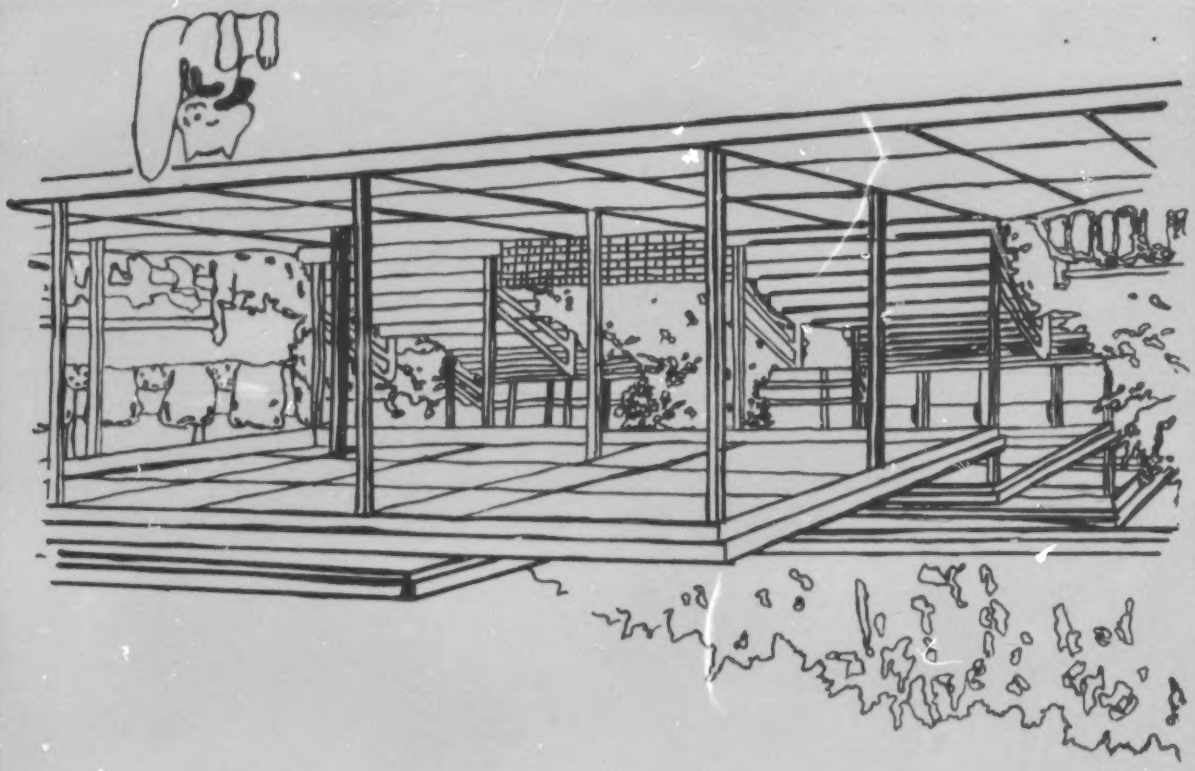
OFFSET PRINTING

30

To wish you joy
To wish you cheer
For every day
Through the year

HAPPY BIRTHDAY

31



SRS

DESIGNED BY S. SNYDER

COMMERCIAL ARTS

PRINTED BY GRAPHIC ART

OFFSET PRINTING

32

ACCESSION NUMBER: VT103509

PUBLICATION DATE: 30JUL76

TITLE: JOB PLACEMENT. FINAL REPORT.

PERSONAL AUTHOR: THOMAS, DON

DESCRIPTOR: *JOB PLACEMENT; *SCHOOL SERVICES; PROGRAM DESCRIPTIONS

IDENTIFIER: PENNSYLVANIA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 24P.; RELATED DOCUMENTS VT 103 506 THROUGH VT 103 508 IN THIS ISSUE.

ABSTRACT: THIS PROJECT ESTABLISHED A JOB PLACEMENT SERVICE IN THE GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL IN PENNSYLVANIA. THE MAJOR OBJECTIVES WERE TO PROVIDE PLACEMENT, FOLLOWUP, AND PRE-EMPLOYMENT PREPARATION, AND TO MAINTAIN COMMUNICATION WITH THE BUREAU OF EMPLOYMENT SECURITY. ACTIVITIES CONDUCTED TO MEET THE OBJECTIVES WERE: VISITING EMPLOYERS FOR JOB DEVELOPMENT AND PUBLIC RELATIONS PURPOSES, SETTING UP JOB INTERVIEWS, CONDUCTING FOLLOWUP STUDIES FOR FIRST AND FIFTH YEAR GRADUATES, AND INTERVIEWING WORKING STUDENTS AND EMPLOYERS OF GRADUATES. PRE-EMPLOYMENT ACTIVITIES INVOLVED DISCUSSION AND COMPLETION OF EMPLOYMENT PACKET, COMPLETION OF PRE-GRADUATION SURVEY AND PERSONAL DATA SHEET, AND GATHERING INFORMATION FROM INSTRUCTORS REGARDING EMPLOYABILITY FACTORS. PERCENTAGE OF TIME SPENT IN VARIOUS PROJECT ACTIVITIES IS SHOWN ALONG WITH RESULTS OF THE 1971 AND 1975 FOLLOWUP STUDIES. SOME CONCLUSIONS INCLUDE THE FOLLOWING: A CLOSE RELATIONSHIP WAS NOT MAINTAINED WITH THE BUREAU OF EMPLOYMENT SECURITY; THERE WAS LITTLE IMPACT ON CURRICULUM CHANGES FROM FEEDBACK STUDIES; AND THE INABILITY TO RETAIN A PLACEMENT SPECIALIST RESULTED IN A FRAGMENTING OF OBJECTIVES. APPENDED TO THE REPORT ARE THE EMPLOYER AND EMPLOYEE FEEDBACK FORMS, FOLLOWUP SURVEYS, ANECDOTAL RECORD, CAREER PLANNING SHEET, RATING SHEET, AND PERSONAL DATA SHEET. (NJ)

INSTITUTION NAME: GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL, PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPT. OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 509

BEST COPY AVAILABLE

FINAL REPORT

JOB PLACEMENT

(Project No: 20-5804)

Cont. of 20-5003

Submitted
By

Don Thomas
Greater Johnstown Area Vocational-Technical School
Johnstown, Pennsylvania

July 30, 1976

Pennsylvania Department of Education
Bureau of Vocational Education
Research Coordinating Unit

CE 009 707

TABLE OF CONTENTS

Page

I. Preface 3

II. Introductory Section 4

A. Abstract
B. Methods

III. Findings and Analysis 8

IV. Conclusions and Recommendations . . . 10

V. Appendix 12

I. PREFACE

This report represents happenings in the third year of the project as well as reflections of the project since its beginning in the 1973-74 term.

The major problem that we have had in accomplishing the objectives of the project centers around the loss of the Job Placement Specialist. He was with us in 1973-74 and 1974-75 but was not employed during 1975-76.

This meant that the activities to accomplish the objectives were fragmented. This does not indicate our lack of concern for placement; however, the process to accomplish our objectives had to be revised.

II. INTRODUCTORY SECTION

A. ABSTRACT

The project had three general objectives:

1. Provide placement and follow-up services for all youth commensurate with their ability and interest.
2. Provide students with pre-employment preparation activities directed to enable all existing youth obtain and retain employment.
3. Maintain lines of communication with the Bureau of Employment Security.

In order to accomplish the above objectives we did the following:

1.1. Defined the roles of individuals involved; i.e., Co-Op, Career Resource Center, Counselors, Teachers, Paraprofessionals, Clerks.

1.2. Employed an individual during evening hours to continue placement activities for recent graduates.

1.3. Conduced follow-up studies for first and fifth year graduates.

1.4. Visit employers to develop job slots and help employers better understand our program.

1.5. Set up job interviews.

1.6. Interview students who are working.

1.7. Interview employers of graduates.

2.1 Engaged in pre-employment program activities.

2.1.1. Handout, discuss and complete employment packet.

2.1.2. Complete pre-graduation survey and personal data sheet.

2.1.3. Gather information (rating sheets) regarding employability factors from instructors.

3.1 Worked with designated representative from Bureau of Employment Security.

As a method to provide feedback to our staff and determine whether or not objectives were being met we maintained a daily log of activities which was converted into weekly reports and eventually summarized into an annual report.

Having worked on the Placement Project both with a Placement Specialist and without one we can make the following observations:

1. Since data is on file with Counselors, with Career Resource Center, Co-Op, and Placement Office; there must be a systematic method to gather and retrieve information.

2. In a system where you have Co-Op and Career Resource Center activities and responsibilities overlapping placement; much direction has to be given to spell out who does what.

3. With the Placement Specialist it is possible that instructors will get further removed from the work picture and they may develop the attitude that "that is his job".

4. The setting up of the office and responsibilities of the Clerk/Paraprofessional must be well defined. If ground rules are not spelled out there can be problems as to whether or not the slot should be filled by a Co-Op student or graduates.

   The district must establish the amount of time and effort, and money it will spend on the out-of-school youth versus those in attendance.

5. Imperative that one individual be responsible for potential graduates and graduates and their employment. Without someone responsible recorded information is scattered and lost.

B. METHODS

Placement data is used as one component in the evaluation system developed to evaluate our vocational and technical programs.

In order to obtain feedback from the staff, graduates, and employers we used the following forms that appear in the appendix.

1. Employee Feedback Report
2. Employer Feedback Report
3. Follow-Up Surveys
4. Required Job Placement Anecdotal Record Survey
5. Career Planning Sheet
6. Rating Sheet
7. Personal Data/Referral

III. FINDINGS AND ANALYSIS

The activities we engaged in provided us with the following results as they relate to the project objectives.

During the third year of the Project the Placement Clerk utilized her time in the following manner:

1. Contacts with students 50%
   A. Program orientation:
      Student requests for employment
      Student requests for information on Co-Op
      Student requests for appointments with Co-Op Instructor
      Assisting students complete and understand forms for Co-Op/Placement
   B. Job Matching:
      Finding suitable students from areas as requested by employers, such as qualified Electric Shop student for Electrical Contractor
   C. Job Placement/Follow-up:
      Graduate students requesting help in finding jobs
      Phone calls from graduates requesting appointments for employment help
      Helping students complete data sheets for employers
   D. Related Problems:
      Grades
      Work Schedules
      Notebook and Wage Records

2. Contacts with Bureau of Employment Security 00%
   A. Discussion with BES liaison:
      Job leads we are unable to fill
      Student referrals for job requests

3. Visits to local businesses and industries 8%
   A. Telephone Contacts:
      Making appointments for employer interviews of students
      Requests from employers for students to fill job openings
      Calls to employers to let them know of progress in filling job leads
      Obtaining employer ratings on students in their employ

4. Contacts with faculty 7%
   A. Program orientation:
      Requests from instructors for best available students for particular job
      Instructors opinion of students' capability to fill particular job
      Approval of instructor to send student out on Co-Op

5. Meetings with school administrators and staff . . . 10%
   A. Review of progress and problems:
      Review of students grades, discipline, attendance
      Process approval for Co-Op forms
      Rating Sheets-Instructors and Employers
      Weekly listings of Co-Op Placement
   B. Discussions with PPS Director:
      Schedule changes
      Approval for student to go on Co-Op
   C. Related Problems:
      Co-Op parking permits
      Early dismissal and arrivals for interviews, etc.

6. Data Processing concerns 14%
   A. Tabulations of Surveys:
      Graduate surveys (Preparation of surveys, envelopes, letters, etc.)

7. Form Concerns 1%
   A. Development concerns:
      Developing forms to be used for operation of Co-Op/Placement Office

8. Self-initiated job development 11%
   A. Industry and business contacts:
      Phone calls and letters, checking on job leads

Follow-up surveys provided us with the following results for the 1975 and 1971 graduates:

Greater Johnstown Area Vocational-Technical School

1975 FOLLOW-UP RESULTS

Number of Graduates	505		
Number of Returns	501	99.2%	
Number Unable to Contact	4		.8%
		99.2%	.8%

EMPLOYMENT

(In Field of Study)			
Full-time	164	32.4%	37.1%
Part-time	24	4.7%	
(Out of Field of Study)			
Full-time	92	18.2%	23.2%
Part-time	25	5.0%	
SUB TOTAL	305		60.3%

UNEMPLOYED

Looking	45	8.9%	
Not Looking	21	4.2%	
SUB TOTAL	66		13.1%

MILITARY

Related to Training	16	3.2%	
Not Related	26	5.2%	
SUB TOTAL	42		8.4%

CONTINUING EDUCATION

Related to Training	68	13.4%	
Not Related	20	4.0%	
SUB TOTAL	88		17.4%
	505		100%

Greater Johnstown Area Vocational-Technical School

1971 FOLLOW-UP RESULTS

Number of Graduates	232	
Number of Returns	189	83%
Number Unable to Contact	43	17%
		100%

EMPLOYMENT

(In Field Of Study)			
Full-time	53	28%	
(Out of Field Of Study)			
Full-time	72	40%	
Part-time	4		
	76		
SUB TOTAL		129	68%

UNEMPLOYED

Looking	10	5%	
Not Looking	24	13%	
SUB TOTAL		34	18%

MILITARY SERVICES

Related to Training	8	4%	
Not Related	7	4%	
SUB TOTAL		15	8%

CONTINUING EDUCATION

Related to Training	8	4%	
Not Related	3	2%	
SUB TOTAL		11	6%
		189	100%

IV. CONCLUSIONS AND RECOMMENDATIONS

What was not accomplished:

1. We were unable to retain a placement Specialist.
2. There was little impact from our feedback studies as it related to curriculum changes.
3. A close working relationship with the Bureau of Employment Security was not maintained.

What was accomplished:

1. We were able to focus on placement and follow-up activities as a means of bringing a team of professionals and paraprofessionals together.
2. Appropriate utilization of a clerk will expand the activities of Job Placement at a lower cost.
3. Used placement data as integral part of advisory committee meetings.

Implications for education:

1. Job Placement becomes an important factor in evaluating programs.
2. Placement and follow-up should not only be a Vo-Tech school activity.
3. Coordination of service to pupils must be well thought out for program execution to be most effective. Placement can be separated into work with students and work with employers.
4. Co-Op theory and pre-employment preparation programs must be tied together.

5. Personnel involved in the program must be energetic self-starters who understand the school system so they can operate as coordinators and consultants rather than salesman.

6. The level of our effectiveness in placement counseling and actual placement activities will either serve as a building block or over time, employers will become less and less interested in cooperating with Vo-Tech without placement the latter will occur.

   Graduates who have received placement services do help future graduates find jobs by contacting placement personnel in the school. Effective placement and follow-up has improved the status of Vocational-Technical Education.

APPENDIX

Employer Feedback

Employee Feedback

Follow-up Surveys

Anecdotal Record

Career Planning Sheet

Rating Sheet

Personal Data/Referral

DT:dkk

7/8/76

PLEASE PRINT

TO: All Seniors

FROM: Pupil Personnel Department

SUBJECT: After High School Job and Career Plans

Your graduation is rapidly approaching. Some of you know exactly what you will be doing after graduation; some of you know the area of your interest but do not have school or employment plans worked out, and some of you may still be unclear as to your vocational direction.

This questionaire is designed to do two things:
(a) Provide a record of your after-high-school job and career plans
(b) Indicate those students who could use additional assistance from Counselors; the Career Resource Center; employers; and the State Employment Service.

Please indicate below the category which you feel best describes your plans and situation at this time.

Name _____
Last First Middle

_____ 1. Now seeking full-time employment. Describe the job you want _____

_____

_____ 2. Now working at a job and will continue to work for the same employer

a. Name of company _____

b. Describe the job _____

_____ 3. I desire additional training or schooling. (Describe course and name the school)

a. Type of training _____

b. Name of school _____

_____ 4. Plan to go into military service. (List service and describe schooling if known)

a. Branch of service _____

b. Describe speciality selected _____

_____ 5. Remain at home and not seek employment _____

_____ 6. My plans are not definite at this time. (What do you think you might do for a career? Describe)

_____

_____ 7. Others (Moving, travel, etc.) _____

_____

NOTE: Many seniors after graduation last year returned to Vo-Tech during the summer for career information and counseling. Mr. Johnson and a counselor will be here throughout the summer months.

16

GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL
Co-Op/Placement Office
Feedback Report

EMPLOYEE FEEDBACK REPORT:

STUDENT: _____

VO-TECH TRAINING AREA: _____ YEAR GRADUATED: _____

PLACE OF EMPLOYMENT: _____

JOB TITLE: _____

DESCRIPTION OF SKILLS REQUIRED TO FUNCTION ON JOB: _____

_____

_____

_____

WHAT WOULD YOU CHANGE IN THE VO-TECH CURRICULUM TO BETTER PREPARE YOU FOR WORK IN YOUR FIELD: _____

_____

_____

_____

_____

_____

_____
Interviewer Date

11/20/75

GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL
Co-Op/Placement Office
Feedback Report

EMPLOYER FEEDBACK REPORT

COMPANY OR BUSINESS _____

CONTACT PERSON _____ TITLE _____

VO-TECH TRAINING AREA OF EMPLOYEE: _____

COMPANY JOB TITLE: _____

SKILLS REQUIRED FOR JOB: _____

_____

_____

EMPLOYER STRENGTHS/WEAKNESSES INITIALLY: _____

_____

_____

RECOMMENDATION TO IMPROVE CURRICULUM: (WHAT BASIC SKILLS ARE LACKING?):

_____

_____

_____

_____

_____
Interviewer Date

11/20/75

JOHNSTOWN VO-TECH CLASS OF 75 FOLLOW-UP

CONFIDENTIAL — Please Print — Date: _____

Name _____ Phone: _____

Present Address _____

Married Name (if applicable) _____

Vo-Tech Training Area _____

I. Please check the box that tells what you are now doing.

- ☐ Employed Full-Time: Employer _____ Job Title _____
- ☐ Employed Part-Time: Employer _____ Job Title _____
- ☐ Unemployed, Looking for job -- what kind _____
- ☐ Unemployed, not looking for work (Travel, vacation, undecided about future, etc.)
- ☐ Remaining at home. Not seeking outside employment.
- ☐ Military Service, Branch _____ Job or Training _____
  Entry Date _____
- ☐ Schooling or additional training, Name of School _____
  Major _____ Length of Program _____
- ☐ Other, Specify _____

I. If you are presently employed, how closely is your job related to your Vo-Tech Training?

- ☐ Same occupation that I studied in my shop
- ☐ Highly related to my shop training
- ☐ Slightly related to my shop training
- ☐ Not at all related to my shop training

I. If you are presently receiving additional schooling or training, how is it related to your Vo-Tech Training?

- ☐ Same field as I studied at Vo-Tech
- ☐ Highly related to my shop training
- ☐ Slightly related to my Vo-Tech shop training
- ☐ Not at all related to my shop training

I. If you are working or have been working, check how you got your job.

- ☐ School Placement Office or CRC
- ☐ School Co-Op Program
- ☐ Shop Instructor
- ☐ Other School Personnel
- ☐ State Employment Agency (B.E.S.)
- ☐ Private Employment Agency
- ☐ Parent or Relative
- ☐ Family Friend or Personal Friend
- ☐ On my own, without anyone's help

If you need help in finding your first job or a job which is more closely related o your long-term career objective, call Mrs. O'Donnell in the Placement Office and set up n appointment. (814-266-6073 Ext. 58)

kk
/22/75

19

JOB PLACEMENT ANECDOTAL RECORD SURVEY

School Greater Johnstown Area Vocational-Technical School Date Year-End Report 6/76

Name of Specialist Co-Op/Placement - Clerk Report #

Placement Office Activity	# of Incidents	# of Ind.	# of Hrs.	Man Hrs.	Comments	
1. Contacts with students						
a. Program orientation	818	818	227	227	22.2%	
b. Preemployability skill education						
c. Job matching	305	305	77.5	77.5	7.6%	
d. Job placement	841	841	138	138	13.5%	50.4%
e. Related problems	470	470	73	73	7.1%	
2. Contacts with Bureau of Employment Security						
a. Program orientation						
b. Discussion with BES liaison	6	6	1	1	.1%	.1%
c. Number of offices visited						
d. Job development						
e. Related problems						
3. Visits to local businesses and industries						
a. Program orientation						
b. Job development						
c. Follow-up of graduates' job adjustment						
d. Related problems						8.5%
e. Telephone contacts	731	731	87.5	87.5	8.5%	
. Contacts with faculty						
a. Program orientation	340	340	35.7	35.7	3.5%	
b. Instructional orientation	22	22	1	1	.1%	3.6%
. Meetings with school administrators and staff						
a. Program orientation	6	6	2	2	.2%	
b. Review of progress and problems	47	47	36.7	36.7	3.6%	
c. Discussions with PPS Director	416	416	33.5	33.5	3.3%	10.5%
d. Related problems	207	207	35.2	35.2	3.4%	
Contacts with PDE representatives						
a. Orientation concerns						
b. Operational problems						
c. Evaluation efforts						
Contacts with outside related organizations						
a. Who?						
b. Who?						

Placement Office Activity	# of Incidents	# of Ind.	# of Hrs.	Man Hrs.	Comments	
8. Data processing concerns						
a. Olivetti S-14 word processing machine						
b. Tabulation of surveys	2,065	2,065	144.7	144.7	14.1%	14.1%
9. Form concerns						
a. Development concerns	4	4	7	7	.7%	
b. Operational concerns	14	14				
c. Logistical problems	4	4	1	1	.1%	.8%
10. Follow-up and feedback concerns						
a. Developmental concerns						
b. Operational concerns						
c. Logistical problems						
11. Self-initiated job development						
a. Industry and business contacts	140	140	17	17	1.7%	
b. Review of newspaper want ads	5	5	1	1	.1%	
c. Others	449	449	96.7	96.7	9.5%	11.3%
12. Planning and development						
a. Budget	6	6	3	3	.3%	
b. Implementation of programs	4	4	3	3	.3%	
c. Others	3	3	1	1	.1%	.7%
13. Professional growth						
a. Review of literature						
b. Contacts with knowledgeable individuals						
c. Educational coursework						
d. Professional meetings						
. Non-job placement service duties						
a. Administrator-initiated						
b. Others						
				1022.5		100%

DDITIONAL COMMENTS:

7. Chemical Technology	4	0	0	3	0	0
8. Civil Technology	1	0	0	1	0	0
9. Commerical Art	4	0	5	1	0	0
10. Cosmetology	2	0	7	1	2	0
11. D E	13	1	9	22	0	1
12. Drafting and Machine Design	6	0	0	3	0	0
13. Electrician	3	2	9	12	0	0
14. Electronics Technology	15	3	2	7	1	0
15. Food Service and Preparation	3	0	3	13	1	0
16. Flor/ Hort	1	0	2	9	0	0
17. Grafics Aids (Printing)	2	1	4	3	0	1
18. HVAC	2	2	4	5	0	1
19. Health Assistant	8	0	3	5	1	0
20. HRT	13	0	1	4	0	0
21. Heavy Mining Machinery	2	0	5	3	0	1
22. Machinist	0	0	0	3	0	0
23. Medical Secretary	1	0	0	0	0	0
24. Med Lab	18	1	0	1	0	0
25. Metal Fab	2	0	3	6	0	0
26. Metallurgical Tech.	0	3	3	2	0	1
27. Service Station Mech.	3	2	9	8	0	1
28. Structural and Architural	7	3	3	2	0	2
29. Textile Fabrication	4	0	4	6	0	0
30. Tool and Die	4	3	4	7	0	0
31. Trowel Trades	0	1	8	9	0	0
32. Welding	1	2	3	8	0	0
TOTAL (489)	132	37	130	176	5	9
	27%	8%	27%	36%	1%	1%

TOTAL OF GIRLS AND BOYS

GIRLS	187
BOYS	302
	489

22 A

CAREER PLANS 1975-76 CLASS

	SCHOOLING	MILITARY	NOW WORKING	LOOK FOR WORK	WILL NOT WORK	MOVING
1. Ag Tech	5	2	3	1	0	0
2. Auto Body	0	0	4	4	0	0
3. Auto Mechanics	3	5	12	7	0	1
4. Building Maintence	1	2	5	8	0	0
5. Business Data Processing	4	3	3	9	0	0
6. Carpentry and Millwork	0	1	12	3	0	0
7. Chemical Technology	4	0	0	3	0	0
8. Civil Technology	1	0	0	1	0	0
9. Commerical Art	4	0	5	1	0	0
10. Cosmetology	2	0	7	1	2	0
11. D E	13	1	9	22	0	1
12. Drafting and Machine Design	6	0	0	3	0	0
13. Electrician	3	2	9	12	0	0
14. Electronics Technology	15	3	2	7	1	0
15. Food Service and Preparation	3	0	3	13	1	0
16. Flor/ Hort	1	0	2	9	0	0
17. Grafics Aids (Printing)	2	1	4	3	0	1
18. HVAC	2	2	4	5	0	1
19. Health Assistant	8	0	3	5	1	0
20. HRT	13	0	1	4	0	0

RATING SHEET

AME: DATE:

ORK HABITS	SKILLS REQUIRED
___5 Finishes work--finds other jobs to do	___5 Independently has acquired additional skills
___4 Completes activities ahead of schedule	___4 Learns new skills readily
___3 Completes work in prescribed time	___3 Has attained basic skills
___2 Slow, holds up others	___2 Needs frequent repetition to maintain skills
___1 Inefficient/disorganized/unconcerned	___1 Defiant in basic skills
PPEARANCE	**PERSUASIVENESS**
___5 Pleasing, presents excellent impression	___5 Convincing--highly effective
___4 Neat, presents good impression	___4 Rather persuasive
___3 Satisfactory	___3 Presents ideas in orderly manner
___2 Something of a handicap	___2 Doesn't hold listerner's interest
___1 Unattractive, definite handicap	___1 Fails to sell self or ideas
LERTNESS	**RESPONSIBILITY**
___5 Quick to respond and comprehend	___5 Will see any job through
___4 Seldom needs additional explanation	___4 Persistent, steady worker
___3 Average	___3 Some encouragement
___2 Usually needs additional explanation	___2 Doesn't stick to the task for long
___1 Slow to respond and comprehend	___1 Flighty/irresponsible
OMMAND OF ENGLISH	**SOCIABILITY**
___5 Outstanding	___5 Good social mixer--has solid friends
___4 Good	___4 Readily makes new friends
___3 Average	___3 Has established group of friends
___2 Limited	___2 Stands back in social interaction
___1 Restricted	___1 Keeps to self/distant
MOTIONAL STABILITY	**TACT**
___5 Calm, relaxed, purposeful	___5 Exceptionally diplomatic, considerate
___4 Composed, exercises self-control	___4 Generally tactful
___3 Ordinary problems and concerns	___3 Tries diplomacy-not too successful
___2 Restless/Uneasy	___2 Rather blunt-inclined to offend
Tense, jittery, apprehensive, lethargic	___1 Outspoken to point of imprudence
EADERSHIP	**SELF-CONFIDENCE**
___5 Definitely leads--makes decisions	___5 Good ego strength--self-confidence
___4 Exerts influence on concensus	___4 Generally self-assured
___3 Makes some decisions without help	___3 Satisfactory--average
___2 Prefers to let others lead	___2 Too inclined to distrust self
___1 probably rejected by peers	___1 Painful uncertainty/vaccilation
OTIVATION	**EMPLOYABILITY**
___5 Enthusiastic and absorbed	___5 Recommended with enthusiasm
___4 Definitely interested	___4 Recommended
___3 Satisfactory	___3 Employable in training area
___2 Interest vacillates	___2 Employable at entry level job
___ Disinterested	___1 Employable only with close supervision

Instructor - Counselor

Greater Johnstown Area Vocational-Technical School
Department of Pupil Personnel Services

DESCRIPTION
of
SKILLS AND/OR KNOWLEDGE ACQUIRED

NAME: DATE:

SKILL OR SUBJECT AREA:

BASIC COMPETENCIES ACQUIRED:

SPECIAL STRENGTHS DEMONSTRATED:

WEAKNESSES OBSERVED:

COMMENTS/RECOMMENDATIONS

Instructor-Counselor

GREATER JOHNSTOWN AREA VO-TECH SCHOOL

Career Resource Center Grade_____

Personal Data/Referral Date_____

I. Last_____ First_____ Middle_____

Home Street_____ Township_____

Address City_____ State_____ Zip Code_____

Age_____ Date of Birth_____ Sex_____ M_____ F

Soc. Sec. #_____ Driver's License_____ Yes_____ No

Phone_____ Draft Status_____

II. High School Greater Johnstown Area Vocational-Technical School

Vocation Area_____

Career Goal_____

III. Can you travel to the company location for additional interview?

Yes_____ No_____

IV. What date would you be available for full-time/part-time work?

_____

V. If you have been employed at one or more jobs in the past, describe the title of your job(s) and the length of time you worked.

_____

_____

VI. Describe your vocational and/or job-related skills.

_____

_____

VE005 707

ACCESSION NUMBER: VT103510

PUBLICATION DATE: 30JUL76

TITLE: COORDINATION OF SECONDARY AND POST SECONDARY CURRICULUM. FINAL REPORT.

PERSONAL AUTHOR: THOMAS, DON

DESCRIPTOR: *PROGRAM COORDINATION; *VOCATIONAL EDUCATION; *SECONDARY EDUCATION; *POST SECONDARY EDUCATION; *ELECTRONIC TECHNICIANS; TASK ANALYSIS; PROGRAM DESCRIPTIONS

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 19P.

ABSTRACT: THIS PROJECT WAS DESIGNED TO IMPROVE THE COMMUNICATION AND COORDINATION BETWEEN PROGRAMS AT THE SECONDARY AND POSTSECONDARY LEVELS IN ENGINEERING TECHNOLOGY IN JOHNSTOWN, PENNSYLVANIA. OBJECTIVES WERE TO LIST ENTRY-LEVEL JOBS AT THE HIGH SCHOOL, POSTSECONDARY, AND FOUR-YEAR COLLEGE LEVELS, DETERMINE THE COURSES TAUGHT, AND COORDINATE THE CURRICULUM. IN MEETING THE OBJECTIVES, MEETINGS WERE HELD TO SHARE CURRICULUM INFORMATION, FACILITIES WERE VISITED, EMPLOYERS AND GRADUATES WERE INTERVIEWED, AND A REVIEW OF THE LITERATURE WAS CONDUCTED. SUGGESTIONS ON CURRICULUM IMPROVEMENT RESULTING FROM FEEDBACK FROM EMPLOYERS AND GRADUATES ARE LISTED ALONG WITH SOME GENERAL CONCLUSIONS ABOUT THE EFFECTS OF THE PROJECT. AMONG THESE, IT WAS NOTED THAT AN EFFECTIVE APPROACH WAS TO COMPARE LEARNING COMPETENCIES RATHER THAN COURSE OUTLINES AND DESCRIPTIONS. THE STUDENT COMPETENCY RECORD FOR A UNIT IN BASIC ELECTRONICS IS INCLUDED ALONG WITH THE EMPLOYABILITY RATING FORM. (NJ)

INSTITUTION NAME: GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL, PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPT. OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 510

FINAL REPORT

COORDINATION OF SECONDARY AND POST SECONDARY CURRICULUM

(Project No: 19-5816)

Submitted
By

Don Thomas
Greater Johnstown Area Vocational-Technical School
Johnstown, Pennsylvania

July 30, 1976

Pennsylvania Department of Education
Bureau of Vocational Education
Research Coordinating Unit

CE 009 706

2

TABLE OF CONTENTS

Page

I. Preface 3

II. Introduction 4

A. Abstract
B. Methods

III. Findings and Analysis 7

IV. Conclusions and Recommendations . . . 9

V. Appendix

I. PREFACE

This project is concerned with the need to promote better understanding of technical education at the high school, post high school, degree and non-degree levels, while increasing the communication and coordination of programs offered at two institutions.

Since there is no community college in our area, we in a sense, serve the community in this capacity; however, articulation between a "high school" and a 4-year college as it relates to technical programs is probably more difficult than between a high school and a community college.

ACKNOWLEDGEMENTS:

The extent to which this project met its objectives is due to the efforts of Glen Elliott and Fred Berish, instructors in Electronics Technology at the secondary level; Herb Reynolds, post secondary two-year non-degree Electronics Technology Instructor; and Dick Bender and Gregory Dick, instructors in the Engineering Technology program at the University of Pittsburgh at Johnstown.

II. ABSTRACT

A. OBJECTIVES

1. List entry level jobs at the high school, two-year post high school, and four-year Applied Engineering Program.

2. At these three levels determine courses taught along with descriptions and outlines.

3. Draw conclusions as to how coordination can be achieved to the benefit of students and institutions.

B. ACTIVITIES TO ACCOMPLISH THESE OBJECTIVES:

1.1. Follow-up graduates and indicate place of employment.

1.2. Interview employers to determine their view of the three programs.

2.1. Gather and review curriculum information from both schools.

3.1. Meet and review data compiled.

C. PROBLEMS:

There were very few graduates to date to follow-up from all three program levels.

It did not take long to see that the programs did not fit together as we anticipated they might.

Almost all available literature on technical education deals with the post high school programs.

D. SIGNIFICANCE AND NEED FOR FURTHER ACTION:

The role of the Area Vocational-Technical School in providing vocational education at the high school level needs to be examined. What is the rationale for technical education in the high school and how do two-year high school programs relate to two-year post-high school programs?

METHODS

Methods utilized to better understand the curriculum at the three levels of instruction and meet our objectives included the following activities:

1. Meetings with all participants to tour facilities and share curriculum information.

2. Personal interviews of graduates and employers.

3. Review of current literature on the subject including a search by VEIN and a meeting of personnel from PENN TAP.

III. FINDINGS AND ANALYSIS

Both institutions now have a better understanding of the scope of the programs at the three levels.

Essentially, we are producing technicians and they are producing practical engineers. We do a lot more trouble shooting where they stress the design and building phase of engineering.

Although we have no formal agreements to date we have made it possible for students to be considered for advanced standing. One of the problems we found is that many of the students who want to move from the Vo-Tech post secondary program to the four-year degree program lack the math background for Engineering Technology and have a difficult time adjusting to the more theoretical environment.

In looking at the job picture we find that the Engineering Technology students must go out of the local market for jobs, but jobs do exist locally at the technician level.

Both institutions serve a need in the community and provide specialized programs for students with varied interest, abilities, and goals.

FEEDBACK FROM EMPLOYER/EMPLOYEE AS IT RELATES TO CURRICULUM:

POST SECONDARY (Non-Degree):

1. More emphasis of color televisions and antenna matching and tuning procedures.
2. Emphasize troubleshooting by schematic interpretation and signal tracing methods.
3. Emphasize craftsmanship in soldering.
4. Include more cable repair and fabrication.
5. Emphasize test equipment use and more attention to solid-state switching and controls for remote monitoring and control of industrial processes.
6. Need good basis for logic circuits.

SECONDARY:

1. More solid state - less tubes.
2. More troubleshooting experience.
3. Less theory more practical experience.
4. Incorporate mechanical problems.
5. Include some logic-digital.

Initate a program where students simulate job interviews.

CONCLUSIONS AND RECOMMENDATION:

1. It is more effective to compare learning outcome; i.e., competencies -- then it is to look at course outlines and descriptions.

   Competencies as developed for our secondary program are included in the appendix.

   This record is available for both employers and post secondary institutions to review as it relates to the competencies of individuals.

2. The effort put forth by the instructors has opened some doors to employment for graduates and has also helped us in making revisions in curriculum to meet local needs.

3. Student interviews have given us a better insight into their needs as it relates to obtaining and retaining employment in their field.

4. There is a place for the three types of programs; however, it is more difficult to place the high school technical graduates.

5. It is more feasible to transfer with advanced standing into a two-year technical program then into a four-year degree program. This is due mainly to the fact that in the four-year programs year one and two are more general and academic in nature with most of the lab work in the third and fourth year.

6. Even though no written agreement exists a willingness to place students at advanced levels and exchange ideas has been achieved.

We will continue to explore our role in providing technical education and how we can articulate better to both employers and other institutions.

V. APPENDIX

Student Competency Record

(Secondary Electronics Technology Programs)

DT:dkk
7/9/76

BEST COPY AVAILABLE

GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL

STUDENT COMPETENCY RECORD

Student _____ Program Electronics Tech.

Level	School Year	Date	Instructor(s)
I.			
II			
III			

Performance Rating:

(4) Can perform with exceptional ability.
(3) Can perform without supervision.
(2) Can perform but requires some supervision.
(1) Cannot perform satisfactorily for participation in a work environment.
(0) Has not been introduced to the competency.

ITEMS	COMPETENCIES	LEVEL I					LEVEL II					LEVEL III				
	UNIT I. BASIC ELECTRONICS-PASSIVE DEVICES	4	3	2	1	0	4	3	2	1	0	4	3	2	1	0
1	Solder and unsolder electronic components on breadboard															
2	Calibrate & measure resistance with the ohmmeter Lab #4															
3	Connect battery power supply and measure voltage Lab #3															
4	Measure with a VOM															
5	Test and determine the characteristics of a series circuit Lab #6 & 12															
6	Test and determine the characteristics of a parallel circuit															
7	Test and determine the characteristics of a series-parallel circuit Lab #14															
8	Construct voltage dividers -- loaded and unloaded Lab #44															
9	Construct a balanced bridge circuit Lab #45															
10	Construct a voltmeter and ammeter using a D'Arsonval Meter movement Lab #27 Lab #24															
11	Test the dynamic characteristics of a non-linear resistance Lab #10															

COMMENTS:

Student _____

ITEMS	COMPETENCIES	LEVEL I					LEVEL II					LEVEL III				
		4	3	2	1	0	4	3	2	1	0	4	3	2	1	0
12	Troubleshoot a d.c. circuit															
13	Determine experimentally the conditions for maximum power transfer															
14	Calibrate and operate the oscilloscope Lissojous Patterns															
15	Test for the characteristics of an inductance-phase relationships and reactance															
16	Test for the characteristics of a capacitor and capacitance-phase relationships and reactance															
17	Test a circuit for the RC and time constant Lab #51															
18	Construct and determine the characteristics of series and RC circuits															
19	Construct and determine the characteristics of series and parallel RL circuits															
20	Construct and determine the characteristics of series RCL circuits-resonance and impedance															
21	Construct and determine the characteristics of parallel RCL circuits-resonance and impedance															
22	UNIT II BASIC ELECTRONICS-ACTIVE DEVICES Test vacuum tube diodes and triodes															
23	Test vacuum tube pentode, tetrode and beam power tubes															
24	Test semiconductor diodes															
25	Determine transistor junction characteristics															
26	Test transistor amplifiers															
27	Test common emitter amplifiers															
28	Test common base and common collector amplifiers															
29	Perform graphic analysis															
30	Test and evaluate bias stablization circuits															
31	UNIT III BASIC ELECTRONICS: CIRCUITS Test power supply rectifiers															

COMMENTS:

Student: _____

ITEM	COMPETENCIES	LEVEL I					LEVEL II					LEVEL III				
		4	3	2	1	0	4	3	2	1	0	4	3	2	1	0
32	Test power supply filter circuits															
33	Test a semiconductor voltage regulator circuit															
34	Test vacuum tube audio amplifiers															
35	Trouble shoot audio amplifiers															
36	Test phase inventers and push-pull amplifiers															
37	Test feed back and attenuator circuits															
38	Test cathode follower															
39	Test tone compensator															
40	Test transducers															
41	Test transistor audio amplifiers															
42	Test high and low pass filters															
43	Test transistor oscillators															
44	Test RF amplifiers															
45	UNIT IV ADVANCED ELECTRONICS: CIRCUITS Test narrow band RF amplifiers															
46	Test wide band RF amplifiers															
47	Test vacuum-tube direct coupled amplifiers															
48	Test vacuum-tube sinusoidal oscillators															
49	Test transistor sinsuoidal oscillators															
50	Wire and test amlitude modulators															
51	Wire and test amplitude demodulators															

COMMENTS:

Student _____

ITEMS	COMPETENCIES	LEVEL I					LEVEL II					LEVEL III				
		4	3	2	1	0	4	3	2	1	0	4	3	2	1	0
52	Test semi-conductor direct coupled amplifier															
53	Wire and test SCRs															
54	Test counter circuits															
55	Construct and analyze AM modulation circuits															
56	Construct and analyze buffers and multi-circuits															
57	Construct and analyze radio PA amplifier circuits															
58	Construct and analyze superheterodyne circuits															
59	Construct and analyze audio circuits															
60	Analyze video amplifier circuits															
61	Analyze sync generators															
62	Analyze video modulator circuits															
63	Construct and analyze TV tuner (front end)															
64	Construct and analyze TV tuner IF circuits															
65	Construct and analyze TV encoder and decoder circuits															
66	Construct and analyze TV demodulator circuits															
67	Construct and analyze TV Sweep circuits															
68	Construct and analyze TV hi-voltage circuits															
69	Construct and analyze TV sound circuit															
70	Construct and analyze TV CRT's (Color and Black and White)															
71	Analyze TV receiver sync circuits															

COMMENTS:

Student _____

ITEMS	COMPETENCIES	LEVEL I					LEVEL II					LEVEL III				
		4	3	2	1	0	4	3	2	1	0	4	3	2	1	0
72	Performance test a video distribution system															

COMMENTS:

17

GREATER JOHNSTOWN AREA VOCATIONAL-TECHNICAL SCHOOL

EMPLOYABILITY RATING

FACTORS	LEVEL I	LEVEL II	LEVEL III
WORK HABITS			
Finishes work -- finds other jobs to do			
Completes activities ahead of schedule			
Completes work in prescribed time			
Slow, holds up others			
Work incomplete and disorganized			
APPEARANCE			
Pleasing, presents excellent impression			
Neat, presents good impression			
Satisfactory			
Somewhat of a handicap			
Deterrent to employment			
ALERTNESS			
Quick to respond and comprehend			
Seldom needs additional explanation			
Average			
Usually needs additional explanation			
Slow to respond and comprehend			
COMMAND OF ENGLISH			
Communicates effectively			
Good, but not exceptional			
Average			
Limited vocabulary			
Seldom communicates verbally			
EMOTIONAL STABILITY			
Calm, relaxed, purposeful			
Composed, exercises self-control			
Ordinary problems and concerns			
Restless/Uneasy			
Tense, jittery, apprehensive, lethargic			
LEADERSHIP			
Definitely leads -- makes decisions			
Exerts influence on concensus			
Makes some decisions without help			
Prefers to let others lead			
Rejected by peers			

	LEVEL I	LEVEL II	LEVEL III
MOTIVATION			
Enthusiastic and interested			
Definitely interested			
Satisfactory			
Interest vacillates			
Disinterested			
PERSUASIVENESS			
Convincing -- highly effective			
Rather persuasive			
Presents ideas in orderly manner			
Doesn't hold listener's interest			
Fails to sell self or ideas			
RESPONSIBILITY			
Will see any job through			
Persistent, steady worker			
Some encouragement required			
Doesn't stick to the task for long			
Flighty/irresponsible			
SELF-CONFIDENCE			
Good ego strength -- self-confident			
Generally self-assured			
Satisfactory -- average			
Inclined to distrust			
Completely lacking			
SOCIABILITY			
Good social mixer -- has solid friends			
Readily makes new friends			
Has established group of friends			
Stands back in social interaction			
Keeps to self/not involved with people			

dkk
7/6/76

CE 009 708

ACCESSION NUMBER: VT103511

PUBLICATION DATE: 30JUN76

TITLE: MINING AND RECLAMATION COOPERATIVE EDUCATION PROGRAM. ANNUAL REPORT.

DESCRIPTOR: *DEMONSTRATION PROGRAMS; *SCHOOL INDUSTRY RELATIONSHIP; *PROGRAM DESCRIPTIONS; *COOPERATIVE PROGRAMS; VOCATIONAL EDUCATION; COMMUNITY COLLEGES; *TECHNICAL OCCUPATIONS

IDENTIFIER: *COAL MINING; *RECLAMATION TECHNOLOGY

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 88P.; APPENDIXES I AND II MAY NOT REPRODUCE WELL.

ABSTRACT: THIS REPORT DESCRIBES THE FISCAL YEAR 1975 FOURTH QUARTER ACTIVITIES AND RESULTS OF A COOPERATIVE EDUCATION PROJECT IN MINING AND RECLAMATION INVOLVING TWO EDUCATIONAL AGENCIES, COAL MINING COMPANIES, AND GOVERNMENT AGENCIES IN THE WESTERN KENTUCKY COAL REGION. THE PURPOSE IS TO RELIEVE THE COAL MINING MANPOWER SHORTAGE OF THE REGION BY TRAINING AND RETRAINING LOCAL PERSONNEL THROUGH THE COOPERATIVE EFFORTS OF THE SCHOOLS AND ONSITE PLACEMENTS. THE REPORT DESCRIBES THE PRACTICUM IN RECLAMATION TECHNOLOGY, SIGNIFICANT PROJECT FINDINGS AND EVENTS, DISSEMINATION ACTIVITIES, DATA COLLECTIONS, STAFF UTILIZATION, AND FUTURE ACTIVITIES. THE SECOND YEAR OF THE PROJECT OPERATION IS VIEWED AS SUCCESSFUL BY THE AUTHOR OF THE REPORT. THE MAJOR PORTION OF THE REPORT CONSISTS OF APPENDED MATERIAL THAT INCLUDES: DESCRIPTION AND ITINERARY OF THE PRACTICUM IN RECLAMATION TECHNOLOGY; FACT SHEET REPORTING A TVA EXPERIMENT IN CONTOUR STRIP MINING; PROGRAMS FROM INSTITUTES, CONFERENCES, AND COUNCIL MEETINGS; POSITION PAPER ON COOPERATIVE EDUCATION PREPARED BY THE UNIVERSITY OF KENTUCKY; DESCRIPTION OF THE WEST VIRGINIA SURFACE MINING RECLAMATION INSPECTOR TRAINING; PROJECT CORRESPONDENCE AND BUDGET INFORMATION; PUBLICITY; AND AN INTERVIEW CHECKLIST FOR PROSPECTIVE STUDENTS. (NJ)

INSTITUTION NAME: MADISONVILLE STATE VOCATIONAL-TECHNICAL SCHOOL, KY.; MADISONVILLE COMMUNITY COLL., KY.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103511

ANNUAL REPORT

Project Number: B 38883-01

Fiscal Number: 4409

Title of Project: Mining and Reclamation Cooperative Education Program

Project Director: George W. Kyle
University Drive
Madisonville, Ky. 42431

Agency or Institution: Madisonville State Vocational-Technical School
537 West Center Street
Madisonville, Ky. 42431

Madisonville Community College
University Drive
Madisonville, Ky. 42431

Report for Period: April 2, 1976 to June 30, 1976

Date Submitted: June 30, 1976 G. Kyle

VT 103 511

2

FINAL REPORT

Project Number: B 38883-01

Fiscal Number: 4409

Title of Project: Mining and Reclamation Cooperative Education Program

Author: George W. Kyle

Project Director: George W. Kyle

Date Transmitted: June 30, 1976

TABLE OF CONTENTS

I Major Activities.....1

Introduction.....1

Practicum in Reclamation Technology.....5

Indiana Coal Mining Institute.....6

Cooperative Education Conference.....6

Vocational Mini Conference.....7

Mining Co-op Program Continues at Voc-Tech School.....7

II Significant Findings and Events.....8

T.V.A. Visit Knoxville, Tennessee.....8

South Hopkins Coal Co. Meeting.....8

New Work Station in Utah.....9

U.S.F.S. Co-op Requirements.....9

Project Doron.....10

New Building Plans For M.C.C. 10

Surface Mining Reclamation Inspector In-Training Specifications.....11

Accreditation of Technical Schools by the Council for Surface Mining and Reclamation in Appalachia.....11

American Mining Congress 1976 Coal Show.....11

State Deep Mining Safety Commission Meeting.....12

Budget Report.....12

III Dissemination Activities.....13

New Co-op Brochure.....13

Lady Reclamation Inspector.....13

Area High School Counselors Conference.....13

The Rec Tech Gazette.....14

4

IV Data Collections.....14

New Initial Interview Checklist For Prospective Students.....14

Student Evaluations Completed.....14

New Company/Agency Evaluation Forms.....15

V Problems.....15

VI Other Activities.....15

The Reclamation Technologist of America.....15

A.I.M.E. Activities.....15

VII Staff Utilization.....16

Approval for New Instructors.....16

New Secretary.....16

Faculty and Staff Visits To Work Areas.....16

New Composition for Technical Students Instructor.....17

Mining Intercession Yields Positive Results.....17

VIII Future Activities.....17

Outlook For New Co-op Positions For 1976-77.....17

Interviews for Fall Semester.....18

Steering Committee and Advisory Committee Plans for Coming Year.....18

Plans For Coordinator At Vocational School.....18

First Lady Mining Technology Students.....19

Holiday Inn.....19

Mining and Reclamation Information Institute.....19

X Appendixes

Reclamation Practicum 20-27

TVA's Back-To-Contour Experiment 28-33

Indiana Coal Mining Institute Program.....34-37

Program For The Cooperative Education Conference.....38-40

University of Kentucky Position Paper on Co-op Education 41-55

Mini Conference 56-57

West Virginia Surface Mining Reclamation Inspector-In-Training Letter and Specifications 58-61

Council for Surface Mining and Reclamation Research in Appalachia 62-65

American Mining Congress Session Papers 66-67

Letter From Mr. Perry and Project Budget For 1977 68-70

New Brochure 71-73

Newspaper Clipping Lady Reclamation Inspector 74-76

Rec Tech Gazette 77-81

Prospective Student Interview Checklist 82-83

Revised Company/Agency Evaluation Forms.....84-85

6

PERIOD COVERED

April 2, 1976 through June 30, 1976

MAJOR ACTIVITIES AND ACCOMPLISHMENTS
DURING THE ENTIRE FISCAL YEAR
PLUS THE FOURTH QUARTER

Introduction

This report describes the activities and results of the Cooperative Mining and Reclamation Project for the fourth quarter specifically and the entire fiscal year in general.

This experimental project in cooperative education has been a complete success for the second year. The interaction between mining companies, government agencies, and both educational institutions has been the key to the excellent progress of this program. The faculty and staff from both institutions have worked very closely together and have complete faith in their capabilities to resolve any local problem big or small.

There continues to be an interaction from the students from both schools. The vocational students and college students have been placed in the same mining classes, using the same facilities and instructors with excellent results. Both groups of students came out of this situation with positive attitudes and both have met their performance objectives.

The coal industry and the reclamation agencies have given their full support to the project and their enthusiasm continues to grow. We sincerely need industry to keep a project of this nature and magnitude operating. Through the provision of co-op positions for work experience and the sharing of their expertise where necessary, the total help from industry has been exemplary.

The project directors have played a key role in keeping the project running smoothly and preventing small difficulties from becoming large ones. From the beginning they work daily to make this cooperative effort between the two (2) schools a success.

The assistance provided by Mr. Louis Perry of the Bureau of Vocational Education and Mr. Keith Stephens of the University of Kentucky has been invaluable. Their suggestions and recommendations have been a great help to the cooperative coordinator, and have played a major part in the success of the entire cooperative project.

Strong support for the above introductory statements is provided in this fourth and final report.

37

As coordinator of the cooperative project, it has indeed been a pleasure for me to have worked on such a project. I appreciate all of the advice and assistance that has been given so graciously. Much work remains to be done in the area of cooperative mining and reclamation, and Region II lends itself as a very worthwhile and practical area for such activities.

The following pages of this introductory section include a brief description of the project problem under investigation, the scope of the study, the objectives pursued, the methodology, and the results obtained.

Madisonville Community College and Madisonville State Vocational-Technical School are located in the center of the Western Kentucky coal field, one of the heaviest coal producing areas of the United States. Adequately trained manpower is a constant problem for the coal companies and especially so during the period of energy shortage which we are now experiencing.

The major coal companies are in an expansion period during which they expect to open several new mines within a fifty (50) mile radius of the two (2) educational institutions. Three (3) of the greatest problems they face are the lack of well-trained coal miners, reclamation technologists, and mining supervisory personnel.

The mining engineer supply is improving but coal producers are still having problems finding enough. Bureau of Mines Director Thomas V. Falkie says that, without minimizing the importance of the overall increase in mining-related enrollments, "we still face a shortage of professional personnel in the mineral fields. This has simply got to be overcome if America is to avert serious mineral and fuel problems that can worsen inflation and compound our unemployment problems."

The mining engineering, undergraduate enrollment for academic years 1974-75 and 1975-76 increased from 1625 to 2125 as of last fall. The number of graduates last year was 304 and the number expected to graduate this year is 366.

The majority of the major coal producers say they have had problems finding enough mining engineers. All reporting companies say they are hiring civil engineers or engineers of other disciplines in liew of mining engineers. One producer, who reports no problems in finding mining engineers, says: "We use the co-op pretty widely and this, coupled with normal recruiting, has served our needs to date.

The above information is extracted and condensed from the June 1976 edition of COAL AGE magazine.

It is the purpose of the two (2) schools and the mining industry to relieve the manpower shortage by training and retraining the people of Region II who are genuinely interested in either Mining or Reclamation Technology. We feel that the development of manpower through the co-op work experience method will fulfill the needs of the student and the mining industry.

This Cooperative Program is an exemplary program designed to field test a Cooperative Mining and Reclamation Technology Program. The knowledge and experience gained from this program could be used in other cooperative programs throughout the state of Kentucky. The project has identified methods of sharing the expertise and facilities of the Madisonville State Vocational-Technical School and Madisonville Community College to better serve the mining and reclamation industry and the people of Region II and the Western Kentucky coal field.

Student selection for the Co-op Programs have varied according to the school selected and the student's objectives.

For the most part, the student attending the vocational school co-op program has received training to permit him to be a better safer coal miner. He receives instructions in mine maintenance mechanics, dealing with a detailed study of hydraulics and electric circuits. The student's goal is to become a master mechanic for an underground coal mining company.

The community college co-op program is designed to train the individual to be a better safer coal miner or Reclamation Technologist. The student in the Mining Technology Program could eventually become a supervisory or mid-management employee for the company. Face boss, assistant mine foremen, mine foreman, and superintendent are positions suitable to the graduate. Reclamation Technologists are trained to work for a surface mining company, federal agencies, state division of reclamation, or for a private reclamation agency as an expert technologist in preplanning, planning, inspecting, and actually working in and completing reclamation projects of the area.

Student selection for the vocational school co-op program is done jointly by the vocational school and the mining companies. The student is required to bid for his co-op position much in the same way that a worker bids for a position at the mine site. The potential student is screened and tested by the company and the vocational-technical school officials for entry into the program.

The community college students are selected from the community college mining and reclamation students who desire co-op work experience while enrolled in the program. Interviews are conducted by representatives from the mining industry and the cooperative coordinator. The student must exhibit an ability to do satisfactory work on the college level before being allowed to work in a co-op position.

The entire project has been in operation for two (2) years. Plans are for the revised program to go into effect on July 1, 1976, and continue through June 30, 1977. The new project is to begin with an extensive recruitment effort most of which has already been completed. Many high schools in the area have been visited by the coordinator to explain the Co-op Program. From this point, the business of screening, interviewing, and testing the applicants will take place before any new students will be admitted to the program. The next step will be to admit new students to the program for the 1976-77 school year.

Once the student is aboard, the business of an effective teaching, tutoring, counseling, and evaluation program comes into effect. Throughout the year, the student will be involved in an extensive education program that when competed will provide him with the skills, attitude, and knowledge to help equip him for the job market and the world of work.

A continued effort during the year by the cooperative coordinator in recruitment, counseling, interviewing, and securing more co-op positions will take place. A complete documented report will be filed quarterly to Mr. Louis Perry, project monitor, as was done during 1975-76.

It is our desire to provide the mining and reclamation technology student the best quality education. With this goal in mind, we feel that the mining industry will be able to look to our schools for graduates now and in the future.

Practicum in Reclamation Technology

Mr. Patrick Angel and George Kyle conducted the second Reclamation Practicum course during the month of May. Fifteen (15) students participated in the two (2) week course that included practical "hands on" type activities in both the Western and Eastern Kentucky coal fields.

The students received three (3) hours college credit for the two (2) week course. It was begun on May 17, 1976 and was competed on May 28, 1976. They were involved in learning situations eight (8) hours a day for the full ten (10) days.

We have a number of agencies and people to thank for making the Practicum such an overwhelming success. The following deserve recognition:

a. Breckinridge Job Corps (Muhlenberg County)
b. Kentucky Division of Reclamation
c. Kentucky Reclamation Association
d. U.S. Forestry Service Experimental Station at Berea.
e. Tennessee Valley Authority
f. U.S.D.A. Soil Conservation Service at Quicksand, Ky.
g. Falcon Coal Company
h. Forest and Wood Technology School at Quicksand, Ky.

The course was designed to familarize the community college reclamation student with the use of reclamation tools and equipment. The course involved students visiting active surface mine operations, as well as actual participation of spoil placement with heavy equipment, grading, seedbed preparation, seedings, tree planting, liming and fertilization of spoil, and water quality treatment.

No textbooks were required for the course and no examinations were given. Grades were based on attendance, enthusiasm, and a special typewritten journal which had to be submitted no later than May 28, 1976. The journal had to be a complete and detailed account of every activity the student was involved in during the two (2) week period.

Please refer to Appendix I for a more detailed account of the Practicum and Appendix II for descriptive literature on the TVA's back to contour experiment conducted on Massengale Mountain near Careyville, Tenn.

Indiana Coal Mining Institute
April 9, 1976

The Indiana Coal Mining Institute was held at the Executive Inn in Evansville, Ind. from April 9 thru April 10, 1976.

The coordinator attended all sessions of the conference and received valuable input for new ideas in mining. All coal companies and allied industry along with concerned government agencies were involved and present at the conference. The coord. met and had lunch with Mr. Richard McNabb, the director of Indiana Division of Reclamation. He indicated they only have 3 full time inspectors with the Indiana Division of Reclamation and anticipates adding 3 more in the near future. The state of Indiana requires their Reclamation inspectors to have a four year degree in natural sciences, forestry, or some allied field. They do not anticipate using associate degree people in the near future. Mr. McNabb nas refered several people to our school for the associate degree and requested we provide him with more literature to use in refering young people to us.

See Appendix III for the program.

Cooperative Education Conference
Bluegrass Convention Center, Ramada Inn
Louisville, KY

The cooperative conference was a 3 day learning experience, sponsored jointly by the University of Kentucky Community College System and the Cooperative Education Association of Kentucky. The conference was funded under Title IV Part D. USOE.

The co-op coordinator attended two full days of sessions March 31 and April 1 but returned after the program on April 1 to speak at "Career Day," at Dawson Springs High School on Friday, April 2.

The conference was kicked off by Dr. Stanley Wall, who spoke on the University of Kentucky's position paper on cooperative education. The next speaker, Mr. Marshall McGhee, discussed how he had expanded his co-op program from a budget of $20,000.000 a year to over $100,000.00 in two years. The keynote speaker, Mr. Russell McClare is the new Commissioner of Finance for the State of Kentucky. He indicated, that the governor is one hundred percent behind the Cooperative Education Programs in the state and believes co-op is the single most important educational step the state has taken.

Dr. Lee M. Frederick, Chief of Bureau of Post Secondary Education, U.S. Office of Education, attended all sessions and contributed significantly to the overall conference. Dr. Frederick is the man who authorized Title IV Part D Funds to Co-op Programs. Kyle had several conversations with Dr. Frederick and felt fortunate to be placed on a first name basis with him. Dr. Frederick requested Kyle to write

up a couple of "Students' Success Stories," for nation-wide publicity in the National Cooperative Educational Newsletter. He also indicated he would like to get to know our program.

See Appendix IV for program.
See Appendix V for Position Paper.

Vocational Mini Conference
5-18-76

On May 18, 1976, the Coordinator attended a Vocational experiences information dissemination Mini Conference at the Capital Plaza Tower in Frankfort. The purpose of the conference was the promulgation of information on three new work experience programs conducted at the high school level. These programs have been highly successful and could possibly work into an excellent feeder project for cooperative oriented post secondary level courses.

During the conference, the coordinator had the opportunity to talk with Mr. Louis Perry, Dr. Floyd McKinney, Mr. Norman Sims and other individuals interested in our program. It is highly beneficial for the coordinator to get the opportunity to talk with these people in sessions like these. Mr. Perry particularly provided some suggestions for new ways to improve our program.

See Appendix VI for Agenda of Mini Conference.

Mining Co-op Program Continues At Voc-Tech School

On June 15, 1976, nine students were enrolled at Madisonville Vocational-Technical School in cooperation with the Island Creek Coal Company. The program is six (6) months in length with the student alternating six (6) week sessions of school and work.

The co-op program is designed to train the person to become a mine machinery mechanic. His course of study includes theory and practical work in hydraulics and electricity while at school and "hands on" activities as a mechanic trainee while in the work phase.

The co-op student receives full pay benefits while in the six (6) month program and he remains a member of the United Mine Workers of America with full benefits.

SIGNIFICANT FINDINGS AND EVENTS

T.V.A. Visit Knoxville, Tennessee 4-22-76

The Coordinator met with Gerald Shilling, Personnel Director, Jack Hampton, T.V.A. Co-op Coordinator and Tom Cox, Assistant to Mr. Shilling. The purpose of the meeting was to establish co-op work stations with the Tennessee Valley authority for both Mining and Reclamation students.

Mr. Shilling was very enthusiastic about our programs and offered full cooperation. He promises to get in contact with supervisors to determine number of slots available for students in both local area and out west. He stated, they are setting up a lab. in Kasper, Wyoming and are now searching for work force for that area. They have some coal operations with the purpose of providing demonstration sites. They have mining positions in both coal and nuclear fuels.

Co-op students are normally hired in the subprofessional schedule of SE-1 which encompasses both high school co-op and college freshmen. The beginning salary rate is $6600.00. This factor alone will probable limit the number of mining co-ops, but will be adequate for reclamation students.

The T.V.A. has a new scholarship program designed to encourage participation in education and subsequent employment with T.V.A., for women and minorities. This scholarship program provides tuition and books up to ($500.00) five hundred dollars per year to qualified students. More detailed information will be provided later.

Mr. Jack Hampton also offered to come to our area and assist in recruitment of minorities and women for our program.

South Hopkins Coal Co. Meeting 4-12-76

Coordinator met with Mr. Charles Savage owner of South Hopkins Coal Co. on 4-12-76. Mr. Savage is interested in adding his Coal Co. to our work station group.

Mr. Savage reviewed our cirriculum in detail and seemed very impressed with our program. He is now going to follow thru by talking to his superintendent and indicated he would be able to provide work spots which could handle 4 to 6 mining students per year.

P.S. On May 15, 1976, Mr. Savage stated he would interview students during the summer for co-op work spots for the fall 1976 semester.

New Work Stations In Utah

The Co-op Coordinator was notified on 4-5-76 by Willie Curtis U.S.F.S., Berea that they will need 4 extra co-op spots in September for work stations in Logan, Utah. The Coordinator followed up with more information to Mr. Curtis on June 15, 1976. On the same date the Coordinator contacted Mr. Con H. Schallau, Deputy Director of the Intermountain Forest and Range Experiment Station in Ogden, Utah. We hope to continue communications until we have ironed out all the problems and initiated a cooperative agreement with the U.S.F.S. in Utah.

U.S.F.S. Co-op Requirements

The following guidelines have been promulgated on 4-13-76 by the U.S.F.S. to be used in selecting and preparing reclamation students for work station experience with the U.S.F.S.:

1. The student must prepare and provide a complete resume to be on file prior to submitting application for co-op experience.
2. A complete copy of transcripts must be provided on file with co-op coordinator.
3. A list of courses in which student is presently enrolled.
4. SF-171 completed.
5. They prefer students who have been enrolled for two semesters at M.C.C.
6. If possible, they desire people who have worked in other co-op positions.

Project Doron

Yet another cooperative effort has been initiated by Madisonville-Vocational Technical School, Madisonville Community College, Island Creek Coal Company, and the U.S. Bureau of Mines and MESA.

Project Doron was initiated in May 1976 and is now an on going educational experiment. It is a shuttle car operator training module which during a forty hour training period will prepare an underground coal miner to be a better safer shuttle car operator.

The training sessions are divided into three phases:

1. Academic training phase
2. Electronic shuttle car simulator trainer phase
3. Actual shuttle car operation phase

Three teams of two men each will be used to debug the program. Our co-op students from M.C.C. have vollenteered to act in the trainee capacity.

The cooperative effort of this operation is emphasized by the following points.

1. Two graduates of M.C.C. Mining Technology cooperative program employed by Island Creek Coal Co. are the Doron instructors
2. The Voc-Tech Region II is supplying building and facility to house the computerized physical plant and classrooms.
3. The U.S. Bureau of Mines owns the equipment.
4. MESA is helping sponsor the program.

New Building Plans For M.C.C.
6-7-76

The approval has just been received for the construction of a new building at M.C.C. for the housing of the Technical Courses. The building will contain approximately 20,000 sq. ft. to be utilized by Mining and Reclamation Technology, Nursing and Business for offices class rooms and laboratories.

The building will cost approximately 1 million dollars. The plans are in progress now at the U. of Ky. for the construction.

Surface Mining Reclamation Inspector In-Training Specifications

The state of West Virginia, Division of Reclamation, under the able leadership of Mr. Benjamin C. Greene (Chief of the Division) has established M.C.C. as one of the two schools in the U.S. approved by the W. VA. Department of Natural Resources to train inspectors in-training. We are proud to have the honor to be selected by such a progressive and able organization.

See Appendix VII for letter and specification.

Accreditation of Technical Schools by the Council for Surface Mining and Reclamation In Appalachia

Mr. Patrick Angel, the Administrative Coordinator for Mining and Reclamation Technology at M.C.C. met with the Council for Surface Mining and Reclamation Research in Appalachia to present a paper proposing that the council establish itself as an accredidation body to monitor training programs for the schools that have or will establish Reclamation Technology Programs. The increasing numbers of schools setting up Reclamation Technology Programs indicates a pressing need in this area.

See Appendix VIII for Agenda of above council.

American Mining Congress 1976 Coal Show May 10-13, 1976

The Cooperative Coordinator attended the the 1976 Coal Show at Detroit, Michigan and found it to be the most informative conference of this type he has ever attended. The convention sessions were held daily in Cobo Hall and were attended by thousands of mine and related industry supervisors. The papers presented there, were extensively researched and contained the most current information available.

It is the coordinator's opinion that much of this current and pertinent information should be integrated into both mining and reclamation classes.

All major mining, reclamation and allied industry companies were represented by actual static displays of equipment and by the top men in each company.

The session papers presented at the Coal Show will be ordered for study by the coordinator and mining and reclamation instructors. The following papers were presented:

1. opening session
2. management
3. longwall mining
4. reclamation
5. underground face operations
6. safety and health
7. surface mining operations
8. underground mining service operations
9. coal preparation

An added advantage of attending the Coal Show is that it is a concentration of all the top personalities in the mining industry. The coordinator was fortunate to meet socially and talk with many of these highly informed individuals.

See Appendix IX for Session Papers.

State Deep Mining Safety Commission Meeting

Madisonville State Vocational-Technical School, Madisonville Community College and heads of mining industry provided the setting on June 21 and 22, 1976 for the first, State Deep Mining Safety Commission Meeting, held in Kentucky. Mr. B.M. Hatley, Dr. G. Harold Massey, Mr. John H. Gray and Senator Ken Gibson laid the ground work and provided the facilities for this milestone event.

Budget Report

The budget for this year was found to be adequate after two budget adjustments which made use of excess funds from Line (101) salaries. This item had an excess because of vacancies in the coordinator and coordinator's aide positions earlier in the year.

The revised budget has been submitted by Mr. Louis Perry. We agree with Mr. Perry that the revised budget will not significantly alter the scope of our effort.

See Appendix X for letter and project budget for 1977.

DISSEMINATION ACTIVITIES

New Co-op Brochure

The revised co-op brochure has been printed and is now in circulation. We feel the U. of Ky. printing press did an exceptional job in producing such a professional product. The new brochure has proven itself in the recruiting of new and counselling of on going students.

See Appendix XI for new brochure.

Lady Reclamation Inspector

The Mining and Reclamation Technology Cooperative received state wide publicity thru the newspaper article entitled "Learning Reclamation in 520 Easy Daily Lessons". This article is the story of Sherry Mallory our first female reclamation student to serve as a reclamation inspector.

See Appendix XII for newspaper clippings.

Area High School Counselors Conference

On 4-19-76 Madisonville Community College was host to over one hundred high school counselors and business men. The meeting was sponsored by the Education Committee of the Madisonville Chamber of Commerce. The purpose of the meeting was to discuss ways of bringing education and the world of work together in the Madisonville area.

A film prepared by Madisonville Voc-Tech Region II in concert with the Chamber of Commerce was viewed and offered for use by the high school counsellors. The film depicted the many vocational opportunities in industry available in the Madisonville area.

A buffet luncheon was served by Mr. Hall Edwards a local merchant and member of the Chamber of Commerce.

Mr. John H. Gray, the Master of Ceremonies for the meeting, called on the heads of industry and the educational institutions of Madisonville, to address the group. All attendees indicated it was a highly productive meeting which facilitated opening of the lines of communication of the community.

The Rec Tech Gazette

The newly formed Reclamation Technologists of America Club has printed the first official newsletter dated May 1976. This letter got nation wide distribution and received excellent reviews.

We feel this letter to be a highly efficient dissemination instrument which can be utilized monthly to maintain interest and enthusiasm over a large geographical area.

The co-op coordinator congradulates the Rec Tech Association of America and Mr. Pat Angel for the terrific results obtained by the Rec Tech Gazette.

See Appendix XIII for copy of Rec Tech Gazette.

DATA COLLECTIONS

New Initial Interview Checklist For Prospective Students

The Co-op Coordinator felt a need for more extensive information on prospective students than has been available in the past. Prior to this time a informal list was maintained on interested students and comprehensive information was not available until after the student had completed an application for admission. This new checklist gives us the ability to follow-up on interested students prior to registration.

See Appendix XIV for Prospective Student Initial Interview Checklist.

Student Evaluations Completed 6-7-1976

The evaluation of all co-op students progress in both school and work station phase was completed on 6-7-76.

The coordinator was delighted to discover very few problems in school phase performance and no significant problems in the work phase evaluations of all active cooperative students.

Where problem areas were detected or where a student's progress indicated a trend toward a decline in performance immediate action was taken to advise and consell the indivisual.

The coordinator continues to note an increase in academic performance after the first work phase. This points up the great advantage in giving the student an early (after first school semester) experience in the chosen "world of work."

New Company / Agency Evaluation Forms

The coordinator felt an intense need to update the company/ agency evaluation forms which provides an invaluable feed back on our program. Information from this form is compiled to allow us to continue to improve the program to meet the needs of industry and agencies.

See Appendix XV for company/agency evaluation form.

PROBLEMS

The problems encountered this quarter stem from the migration of personnel. Two very important personalities have left the program to be employed in the mining industry.

Mr. L.C. Combs, Head of Mining Technology, left us in May 1976, Mrs. Sarah Spencer, Secretary of Mining and Reclamation Technology left June 30, 1976. Mrs. Jenna Lou Mason, Coordinator's Assistant, and right arm, is leaving July 7, 1976 to return to school.

Both Co-op Programs continue to make beautiful progress and we feel that soon new leaders will join us to continue to move the program toward new and higher goals.

The cooperation among the various agencies is truly unique and will be the one force which carries us over the above mentioned problem.

We know that 1976-77 will be as successful as 1975-76. The year has been truly a mountaintop experience for the coordinator.

OTHER ACTIVITIES

The Reclamation Technologist of America

The Reclamation Technology Club has met to elect new officers for the summer semester and shows promise and enthusiasm in continueing the good works from the previous semester.

A.I.M.E. Activities

The American institute of Mining Engineers has established Tuesdays at 12:30PM for this semester's meeting dates. They have elected new officers and are now in the process of selecting a new sponsor to replace Mr. L.C. Combs. The students from this organization provided the assistance needed to make the two day State Deep Mining Safety Commission meeting an overwhelming success.

STAFF UTILIZATION

Approval for New Instructors

M.C.C. has received approval for the employment of one additional mining instructor and one reclamation instructor. Mr. Combs' departure left us with two vacancies in Mining Technology.

LTC William Henshaw, who is retiring from the Air Force in August 1976, has been employed for the start of the Fall 1976 semester as a mining instructor. His credentials are very impressive in that he has a BS in Mining Engineering and a MS in Systems Engineering. We welcome LTC Henshaw and we all are positive he will significantly contribute to our program.

New Secretary

Ms. Sheba Y. Keaton has been employed effective June 28, 1976 as Secretary to the Mining and Reclamation Technology Program. We are delighted to have Ms. Keaton on our team. Ms. Keaton also comes to us highly qualified. She has a BA in Secretarial Science from Livingston College and was the editor in chief of the College year book for Livingston College her senior year.

Faculty and Staff Visits To Work Areas

During the fiscal year 1975-76 the co-op coordinator made personal visits to all work station where co-op students were employed. The purpose of these visits was; to famialarize the coordinator with the work situations, to evaluate the students and to remain on a cooperative basis with the students' supervisors.

The faculty members exhibit great enthusiasm to accompany the coordinator on future visits to work stations and the coordinator will provide opportunities and coordination to facilitate a greater number of visits during fiscal 1976-77.

LTC Henshaw is intensely interested in visiting all mine areas, where we have co-op work stations with the coordinator during August and September 1976. The coordinator is making plans for these visits now.

New Composition for Technical Students Instructor

Ms. Pat Ramsden has recently joined the English faculty at M.C.C. One of her major areas of interest is the organization of Technical Writing Class using actual mine company and government agency forms, and writing requirements.

Mining Intercession Yields Positive Results

Vocational School instructors again presented classes in Hydraulics, Electrical Circuits and Elements of Mining.

From conferences with the faculty and staff at the Vocational School it is quite apparent that the experiment is yielding very positive results. The students also seem very happy and contented with the Cooperative Project.

Again this is an example of how the two (2) institutions can and do work together for the good of the student. We are indeed proud of the success of this experiment which will open the door to future projects of this type. We are positive that the end result will be better prepared students for the mining and reclamation industry.

FUTURE ACTIVITIES

Outlook For New Co-op Positions For 1976-77

The situation is highly favorable for a number of new co-op positions for the fall of 76 and spring of 1977. At the present (summer semester 1976) we have one hundred and forty six (146) students enrolled. Forty seven (47) are reclamation students and ninty nine (99) are mining students.

With all the new positions (mentioned earlier in report), becoming available it becomes apparent that the programs are very attractive to the people of Region II. We look to the future with optimism and great hope. Our objective is to make the program even bigger and better in the coming years.

Interviews for Fall Semester

Recent contacts with company representatives have yielded a tenative schedule for co-op position interviews. The latter part of July and early August will be set aside for interviewing potential co-op students.

One of the major companies require the students to have completed the ACT Test prior to interview while other companies don't require completion of ACT.

Generally all other requirements are the same for co-op positions. The student would first be required to perform academically. After being accepted by the company the student will be required to pass a physical examination and then commit himself to the program by signing a training agreement.

Steering Committee and Advisory Committee Plans for Coming Year

We feel that the steering committee and advisory committee are essential, to provide that vital link with industry and agencies. This close communication with users of our product insures an effective cooperative program. The steering committee will be responsible for the overall direction of the project and operational guidelines. This committee will also review and evaluate plans for the mining programs as they are developed.

The local advisory committee will continue to be responsible for keeping a close watch on the entire co-op program. It will be this committee's duty to assess the progress of the co-op program and to make suggestions to the project directors and the Steering Committee. The Advisory Committee will in no way function as a decision making body for the cooperative program.

Plans For Coordinator At Vocational School

The Cooperative Coordinator continues to be housed part of the time at the Madisonville Vocational-Technical School. The duties there centered around the Mining Program. A close association has been established and will be maintained with the faculty and staff.

Mr. Walter Carneal, the principal of the Voc Tech. School has been highly cooperative He recently upgraded the furniture and facilities in the coordinator's office there at the Voc Tech. School.

The Coordinator will continue to be responsible for linking the Vocational School, Community College and the Mining Industry together. Region II has made great strides to this end, in fact this close cooperation and communications may be one of the most significant factors in the continueing success of this program.

...nce, the coordinator's task is to meet and deal with people. It is his duty to maintain a harmonic atmosphere in regards to the three agencies involved. This is accomplished by relating to people and letting them know he is vitally concerned with all aspects of the programs.

First Lady Mining Technology Students

Ms. Lyda Ruth Noe was the first lady to register for the Mining Technology AA degree at M.C.C. Ms. Patricia Jennings was right begind her to become the second. We have been diligently searching for some female students in this program and it seems this is an excellent beginning. These are two of the twenty newly enrolled students during the summer semester. We have high hopes for them and we are certain there will be many ladies to follow. The coordinator congradulates these ladies for their courage in entering a here-to-fore masculine vocation. We wish them complete success in their endeavor.

Holiday Inn

The Holiday Inn Motel located two miles north of M.C.C. here in Madisonville was recently given to the University of Kentucky. We were inturn given approval to use the motel as a part of M.C.C. The rooms will be used as residences for M.C.C. students who live beyond a reasonable commuting distance. The conference rooms will also be available to be used as class rooms and for group meetings. This new facility is a tremendous asset to Region II which will provide us with the ability to house mining and reclamation students from afar who have indicated a desire to come to school if housing was available.

Mining and Reclamation Information Institute

A committee has been formed at M.C.C. and the Voc-Tech School to initiate an information gathering program which will provide a central location for all current developments and source information. A concerted effort is being made by the co-op coordinator to gather and catalog mining and reclamation information from all available sources. Some of these sources are: mining companies, other educational institutes, government agencies such as MESA, U.S. Bureau of Mines U.S. Forest Service and the Kentucky Division of Reclamation. We think this information institute can be highly valuable to our students and as an information exchange center between mining companies and government agencies.

BEST COPY AVAILABLE

APPENDIX I

Reclamation Practicum

PRACTICUM IN RECLAMATION TECHNOLOGY (ET 175)

Information Sheet

WHAT IS PRACTICUM?

Practicum in Reclamation Technology (ET 175) is a required three (3) credit hour course that is designed to familiarize M.C.C. reclamation students with the "practical" aspect of the reclamation profession. Students are exposed to reclamation tools and equipment, the latest developments in research, the enforcement of reclamation laws, and to the various methods of operation for both area and contour surface mining. The course will involve participation of spoil placement with heavy equipment, grading, seedbed preparation, seedings, tree planting, liming and fertilization of spoil, and water quality treatment.

WHEN AND WHERE WILL PRACTICUM MEET?

Practicum will meet from May 17 to May 28, 1976, and the students will be involved in work/learn situations eight (8) hours per day, for ten (10) days during this time. The first week will be held in Western Kentucky and the second week will be held in Eastern Kentucky (see itinerary on pages 4 - 7 for more details).

WHAT WILL PRACTICUM COST?

The tuition for Practicum in Reclamation Technology is $51.00 for Kentucky residents. If you are planning to take six (6) or more credit hours during the regular summer session, tuition would be an additional $97.50.

Housing has been arranged in Eastern Kentucky at a cost of $18.00 per student and meals will be taken at restaurants on the road. The following is a list of the approximate costs on the road for Practicum in Reclamation Technology:

In Western Kentucky

May 17	Lunch at Restaurant	- Approx.	$ 2.00
18	Lunch at Restaurant	- Approx.	2.00
19	Lunch at Restaurant	- Approx.	2.00
20	Bring a Sack Lunch	- Approx.	1.50
21	Bring a Sack Lunch	- Approx.	1.50

(continued on the following page)

In Eastern Kentucky

May 23	Dinner at Restaurant	-	Approx.	$ 2.50
	Motel Room	-		7.50
24	Breakfast at Restaurant	-	Approx.	1.50
	Lunch at Restaurant	-	Approx.	2.00
	Dinner at Restaurant	-	Approx.	2.50
	Motel Room			7.50
25	Breakfast at Restaurant	-	Approx.	1.50
	Lunch at Restaurant	-	Approx.	2.00
	Dinner at Restaurant	-	Approx.	2.50
	Room at Quicksand	-		1.00
26	Breakfast at Restaurant	-	Approx.	1.50
	Lunch at Restaurant	-	Approx.	2.00
	Dinner at Restaurant	-	Approx.	2.50
	Room at Quicksand	-		1.00
27	Breakfast at Restaurant	-	Approx.	1.50
	Lunch at Restaurant	-	Approx.	2.00
	Cook-out and Camp-out at cabin on "Angel's Mountain" (Optional)			
	Room at Quicksand	-		1.00
28	Breakfast at Restaurant	-	Approx.	1.50
	Lunch at Restaurant	-	Approx.	2.00
	Approx. Total			$ 54.50

Expect to spend approximately $50.00 to $60.00 for meals and housing during the two (2) weeks.

Transportation and all necessary equipment (including hardhats) will be provided. The use of personal cars during Practicum is not permitted. Each student must have a pair of hardtoe boots. For the week in Eastern Kentucky, each student must bring his own linen (towels, washcloths, blankets, pillow, extra large bedsheets, etc.) for the three (3) nights we will spend at Quicksand. A sleeping bag could be substituted in place of bed sheets and blankets. A student accident and sickness insurance coverage is provided for all students involved in the two (2) week activities in Practicum.

HOW WILL GRADES BE EARNED IN THIS COURSE?

No textbooks are required and there will be no examinations. Grades will be based on:

(1) attendance
(2) enthusiasm
(3) a special written journal which must be submitted the morning after each days work
(4) a plant press for new vegetative species encountered during the course.

The journal will be a complete and detailed account of every activity you are involved in during the two (2) weeks of Practicum. It will include step by step descriptions of activities, names and comments of Reclamation people encountered, sketch maps of areas visited, critiques of experimental plots observed, and any other detail worth recording for future reference. The majority of your grade will be based upon the journal that you submit.

HOW DO I SIGN UP FOR PRACTICUM IN RECLAMATION TECHNOLOGY?

Due to the nature of this course, no more than fourteen (14) students will be permitted to sign up. Therefore, reservations will be made on a "first come - first serve" basis. The first fourteen (14) students who pays the tuition fees for Practicum will have a guaranteed reservation for the course. The fees must be paid in full to the business office at M.C.C. before you are considered officially signed up. When the list is full, a "waiting list" will be started in the event one of the first students withdraws or fails to show up for the course. The tuition fees may be sent in by mail or brought in personally but in either case, must be paid no later than May 7.

WHERE CAN I GET MORE INFORMATION ABOUT PRACTICUM?

Contact: Patrick M. Angel
Administrative Coordinator
Reclamation/Mining Technology
Madisonville Community College
Madisonville, Kentucky 42431

Telephone: (502) 821-2250

INTINERARY OF PRACTICUM IN RECLAMATION TECHNOLOGY (ET 175)

In Western Kentucky

May 17, 1976

7:15 AM	- Leave M.C.C. student parking lot for Breckinridge Satellite Job Corp Training Center.
8:00 AM to 9:00AM	- Lecture. Familiarization with the use and functions of bulldozers in reclamation or related activities on strip mine spoil. Cost factors, safety, specifications of different models, etc.
9:00 AM to 11:30 AM	- Field exercise. Actual participation in placement of spoil, grading, etc. with bulldozers. Dozer repair, maintenance and limitations of each model used.
11:30 AM to 12:30 PM	- Lunch
12:30 PM to 1:30 PM	- Lecture. Familiarization with the use and functions of scrapers in reclamation or related activities on strip mine spoil. Cost factors, safety, specifications of different models, etc.
1:30 PM to 4:30 PM	- Field exercise. Actual participation of movement and replacement of spoil with scrapers. Scraper repair, maintenance and limitations of each model used.
4:30 PM	- Return to M.C.C.

May 18, 1976

7:15 AM	- Leave M.C.C. student parking lot for Breckinridge Satellite Job Corp Training Center.
8:00 AM to 9:00 AM	- Lecture. Familiarization with the use and functions of graders in reclamation or related activities on strip mine spoil. Cost factors, safety specifications of different models, etc.
9:00 AM to 11:30 AM	- Field Exercise. Actual participation of spoil grading and movement of spoil with graders. Grader repair, maintenance and limitations of each model used.
11:30 AM to 12:30 PM	- Lunch

12:30 PM to 1:30 PM	- Lecture. Familiarization with the use and functions of front-end loaders as applicable to strip mine reclamation or related activities. Cost factors, safety, specifications of different models, etc.
1:30 PM to 4:30 PM	- Field exercise. Actual operation of front-end loaders. Front-end loader repair, maintenance and limitations of each model used.
4:30 PM	- Return to M.C.C.
May 19, 1976	
7:45 AM	- Leave M.C.C. student parking lot for Madisonville District office of the Kentucky Division of Reclamation.
8:00 AM to 4:30 PM	- Inspection of area surface mines with state reclamation inspectors. Students will travel with inspectors and observe their routine activities and participate in activities such as inspecting, testing water, taking spoil samples, "walking out" permits, taking slope readings, etc. Students will observe first hand the actual enforcement of area surface mining in Western Kentucky. Lunch at local restaurant.
4:30 PM	- Return home
May 20, 1976	
7:00 AM	- Leave M.C.C. student parking lot for Amax Coal Company reclamation operations in Chandler, IN
8:00 AM to 4:00 PM	- Actual participation of reclamation activities including operation of hydroseeder, exploratory overburden drill, fertilizing and seeding. Bring a sack lunch.
4:00 PM	- Return home
May 21, 1976	
7:30 AM	- Leave M.C.C. student parking lot for Kentucky Reclamation Associations nursery and field operations on nearby strip mine.
8:00 AM to 4:30 PM	- Actual participation in the application of lime, fertilizer, mulch, etc. on spoil material. Seeding, tree planting, seedbed preparation, tree nursery work. Bring a sack lunch.
4:30 PM	- Return home

In Eastern Kentucky

May 23, 1976

1:00 PM	- Leave M.C.C. student parking lot for U.S.F.S. Experimental Station at Berea, Kentucky.
6:00 PM	- Arrive in Berea, Kentucky, check in motel, and have dinner.

May 24, 1976

8:00 AM to 5:00 PM	- Tour of U.S. Forest Service Experimental Station and review a Strip Mine Reclamation Research project being conducted at Berea. Lunch and dinner at local restaurant. Stay at Motel.

May 25, 1976

7:30 AM	- Leave Berea for Caryville, Tennessee
9:30 AM to 3:00 PM	- Tour of Multiple Seam-Back to Contour Experimental Operation by Long Pit Mining Company and other experimental areas in cooperation with Tennessee Valley Authority and Tennessee Division of Surface Mining and Reclamation.
3:00 PM	- Leave Tennessee for Quicksand, Kentucky

May 26, 1976

7:15 AM	- Leave Quicksand for Hazard District office of the Kentucky Division of Reclamation.
8:00 AM to 4:30 PM	-- Inspection of contour surface mines with state reclamation inspectors. Students will travel with inspectors and observe their routine activities and participate in activities such as inspecting, testing water, taking spoil samples, "walking out" permits, taking slope readings, etc. Students will observe first hand the actual enforcement of contour surface mining in Eastern Kentucky. Lunch at local restaurant.
4:30 PM	- Return to Quicksand

May 27, 1976

8:00 AM to 12:00 noon	- Tour of U.S.D.A., Soil Conservation Services Plant Materials Center at Quicksand, Kentucky and review of Strip Mine Reclamation Research projects being conducted on mountain top removal in Breathitt County, Kentucky.
12:00 noon to 1:00 PM	- Lunch

1:00 PM to 4:30 PM	- Tour of mountain top removal operation experimental plots, hydroseeder operation, and vineyard of Falcon Coal Company strip mine spoil in Breathitt County, Kentucky.
4:30 PM	- Travel to cabin on "Angel's Mountain" for cook-out and camp-out (optional).

May 28, 1976

8:00 AM to 10:00 AM	- Travel to Winchester, Kentucky
10:00 AM to 12:00 noon	- Demonstration of Estes lime spreading trucks, straw blower, wood bark mulcher and one-way spreader attachment and other heavy equipment designed for strip mine spoil reclamation.
1:00 PM	- Return to Madisonville

BEST COPY AVAILABLE

APPENDIX II

TVA's Back-To-Contour Experiment
Massengale Mountain Near Careyville, Tenn.

34

Summary Fact-sheet
TVA Experimental Contour Strip Mining Studies
Massengale Mountain
Campbell County, Tennessee
Long Pit Mining Company

Experimental "Back-to-Contour" Mining Method	Advanced-Conventional Contour Method

I. Engineering and Mining Factors

1. Mining begun July 2, 1972; estimated completion is July 1975.	1. Mining begun February 19, 1971; completed in October 1972.
2. Multiple cut strip and auger system	2. Multiple cut strip and auger system.
3. Approximately 182 acres disturbed in 2.6 miles.	3. A total of 360 acres were disturbed and revegetated in 3.3 miles.
4. 815,053 tons recovered as of 1-1-75.	4. 432,749 tons recovered.
5. Multiple seam contour mining on four seams averaging 13-1/2 feet of coal on slopes between 22-27 degrees (average 24 degrees).	5. Multiple seam contour mining on four seams averaging 13-1/2 feet of coal on slopes between 22-27 degrees (average 24 degrees). A fifth seam averaging 30 inches of coal als mined at 3,000 feet elevation.
6. Widths of mine cuts - Experimental - (1) Frozen Head - 60 feet (2) Pee Wee 1st cut - 110 feet 2nd cut - 90 feet > 200 feet (3) Walnut Mountain 1st cut - 110 feet 2nd cut - 100 feet > 210 feet (4) Red Ash - 85 feet	6. Widths of mine cuts - Conventional - Widths of mine cuts by seams (1) Frozen Head - 50 feet (2) Pee Wee - 80 feet (3) Walnut Mountain - 80 feet (4) Red Ash - 60 feet
7. Return to approximate contour with elimination of highwalls and benches through advanced spoil handling systems and techniques, including placement of spoil materials in temporary and permanent off-site storage areas; and with placement of spoil into progressively higher pits.	7. Mining resulted in a single highwall, outslope and bench because of closeness of the four seams; outslope angle increased.
8. Most applicable (efficient) on multiple seam operations.	8. Applicable either single or multiple seam operations.
9. Mining system requires much closer planning and operator care (much more complex).	9. Mining system relatively simple and conventional.
10. 4,478 tons per acre recovered.	10. 1,202 tons per acre recovered.

Experimental "Back-to-Contour" Mining Method	Advanced-Conventional Contour Method
II. Environmental Factors	
1. Eliminates the visual topographic contrast of a conventional highwall at any viewer angle.	1. Persistent highwalls with continuing visual problem, especially until outslope has mature tree growth.
2. Returns overburden back to approximate contour at minimum slope with reduced risks of erosion and landslides.	2. Creates steeper outslopes with increased risk of erosion and landslides.
3. Segregation and covering of acid-bearing materials easier thereby preventing toxic problems. Permits placement of better spoil on the surface for more rapid revegetation.	3. Segregation and burying of toxic materials somewhat more difficult without great care.
4. Intersecting ditches above the highwall provides better water control by directing to prepared drainages. On completion of mining additional final water control measures will provide post mining protection.	4. No water control (diversion) measures above the highwalls.
5. Problems of permanent off-site spoil storage, water control and revegetation.	5. No off-site spoil storage.
III. Future Uses	
1. Demonstrates advanced mining and reclamation techniques.	1. Demonstrates conventional mining and reclamation practices.
2. With roads left and improved, provides access for land management.	2. Provides access for land management.
3. Eliminates flat areas for higher types of land use utilizing entire area for productive forestry and wildlife programs.	3. Provides flat bench areas for higher types of land use: impoundments, house sites, wildlife clearings (level), etc.
4. Permits easier vertical highwall access.	4. Highwall limits vertical access.

Experimental "Back-to-Contour" Mining Method	Advanced-Conventional Contour Method

IV. Economic Factors

Cost to date averaged $12.03/ton	1. Cost for the two-year mining period averaged $8.82/ton.

V. Conclusions

More costly (approaches 20 percent).	1. Less costly.
Limited, short-term aesthetic problems.	2. Continuing aesthetic problems.
Lower risk of onsite environmental damage.	3. Higher risk of onsite environmental damage.
Offsite storage areas required.	4. No offsite storage of spoil required.
Except for roads, no level area produced.	5. More level area produced.
Most feasible only on multiple cut and seam jobs without high cost.	6. Universally applicable.

MJ:KGE
-25-75

MINING AREA WITH SEAM INTERVALS

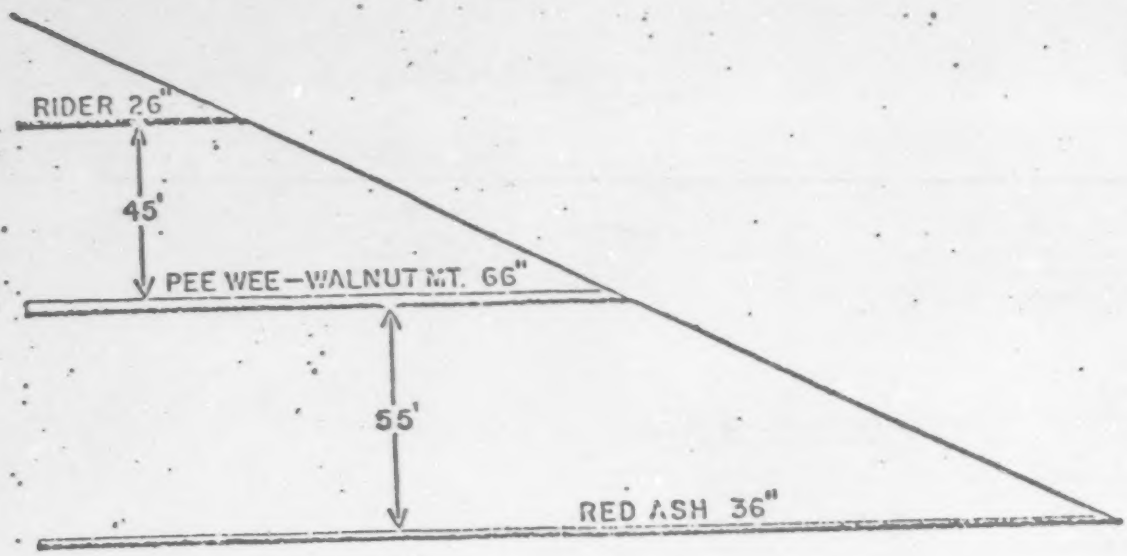


FIG.1

STRIPPING SEQUENCE

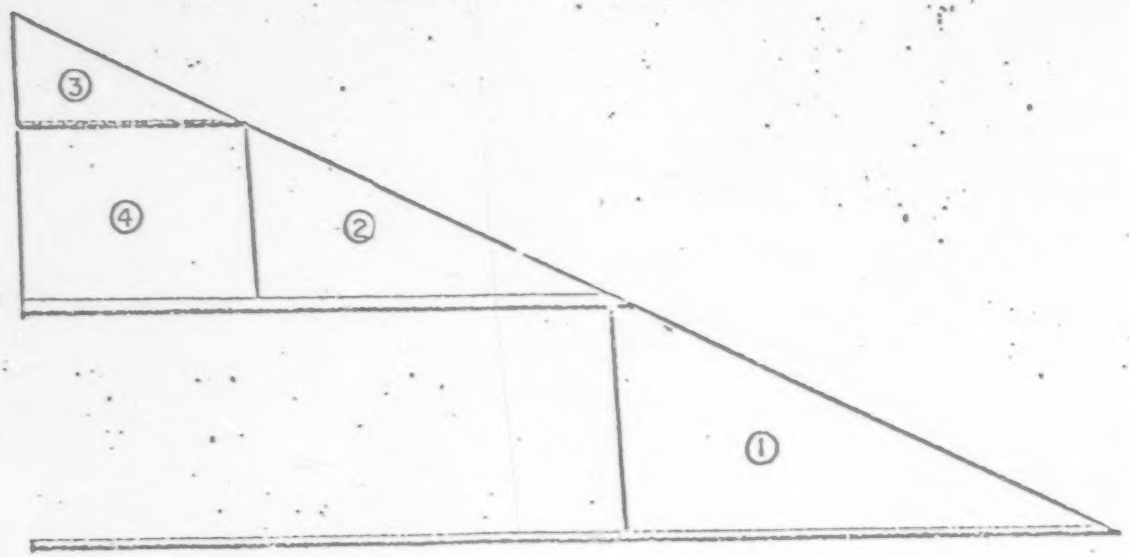


FIG. 2

APPROXIMATE FINAL PROFILE OF
BACKFILLED AND GRADED PIT AREA

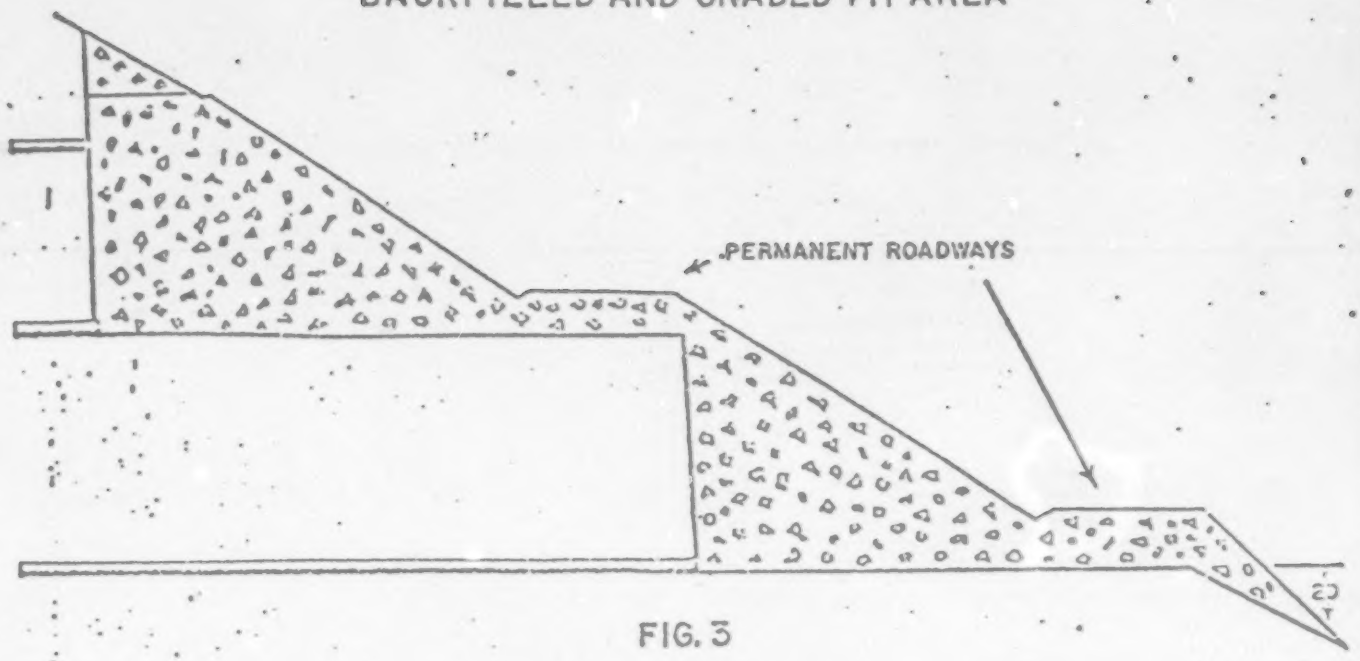


FIG. 3

APPENDIX III

Indiana Coal Mining Institute Program

EXECUTIVE BOARD

Don Stiffler
Wayne Parke
Dennis Frailey
George McGuire
William A. Beeman
Michael Rayphole
Lee R. Kelce
Frank Scherrer
Larry Shepherd
Terry McQueen
Gary Brown
Robert Muckenstorm
Leonard Hughes
Fred Clayton
Robert E. Cox
Bill Wills
Travis Wellman
John Ugo
Dan Gloger
Kenneth D. Kramer

INDIANA COAL MINING INSTITUTE

OFFICERS

Gene N. Fithian ..... President
John Kerr ..... First Vice President
Charles Schulties ..... Second Vice President
John Megenhardt ..... Third Vice President
Ethel L. Morgan ..... Secretary-Treasurer
Sharon K. Lemmons ..... Registrar

EXECUTIVE INN
Evansville, Indiana

April 9 - 10, 1976

PROGRAM

Central Standard Time

FRIDAY, APRIL 9, 1976

10:00 a.m.—Registration

6:00 to 8:00 p.m.—Hospitality Hour (Stag)

SATURDAY, APRIL 10, 1976

8:00 a.m.—Registration

9:15 a.m.—Meeting called to order by President Gene N. Fithian

Invocation—Rev. M. Bilskie, Pastor, Holy Rosary Church Evansville, Indiana

Address of Welcome—Honorable Russell G. Lloyd, Mayor, Evansville, Indiana

Business Session

Election of Officers for 1976-1977

9:30 a.m.—"Hand Tool Safety—It's Up to You!"

Mr. Roger F. Moore, Sales Representative, J. H. Williams & Company, Indianapolis, Indiana

9:50 a.m.—"What is New in Dragline Buckets."—

Mr. Maurice J. Hanford, Sales Representative, Page Engineering Company, Chicago, Illinois

10:15 a.m.—"Personal Liability of Management Personnel under the Federal Coal Mine Health and Safety Act"—

Mr. John L. Kilcullen, Webster, Kilcullen & Chamberlain, Washington, D.C.

10:40 a.m.—"Air Shaft Construction with the Raise Boring Machine at Peabody."

Mr. Eric Egli, Eastern Division Manager, Thyssen Mining Construction Inc. (formerly with Peabody Coal Co.), Lakewood, Colorado

11:00 a.m.—"Electric Power Systems for Surface Mining Operations"—

Mr. David E. Hamilton, Mining Application Engineer, General Electric Company, Mining Equipment Operation, Schenectady, N. Y.

11:20 a.m.—"Coal Labor Relations Faces a New Era"—

Mr. Joseph P. Brennan, President, Bituminous Coal Operators Association, Inc., Washington, D. C.

12:00 Noon—LUNCHEON MEETING (Stag)

Toastmaster—John A. Stachura, Safety Director, Amax Coal Co. Indianapolis, Indiana.

"Excerpts from the Washington Scene"—
Mr. J. Allen Overton, Jr., President, American Mining Congress, Washington, D.C.

Door prizes to be drawn

Presentation of gavel to President-elect

Adjournment

United States Department of the Interior

BUREAU OF MINES
2401 E STREET, NW.
WASHINGTON, D.C. 20241

OPEN BRIEFING ON COAL MINING RESEARCH
in Association with the
INDIANA COAL MINING INSTITUTE
April 9, 1976
Evansville, Indiana
(Executive Inn Motor Lodge)

AM

9:00 Introduction and Overview

9:20 Improved Surface Mining Excavation and Reclamation Systems
Edward W. Kruse, Bureau of Mines, Washington, D.C.

9:50 Surface Mining Equipment Development
Hamilton B. Reese, Bureau of Mines, Washington, D.C.

10:20 BREAK

10:35 Research on Improving Underground Coal Mine Productivity
William B. Schmidt, Bureau of Mines, Washington, D.C.

11:05 Research to Improve the Health and Safety of Surface Coal Miners
David R. Forshey, Bureau of Mines, Washington, D.C.

11:35 LUNCH

PM

1:00 The New Bureau of Mines Mining Research Center, Carbondale, Illinois
Joseph J. Yancik, Assistant Director, Mining Research, Bureau of Mines, Washington, D.C.

1:25 Panel Discussion on Mining Research Needs

Dick McNabb - Director of the Indiana Division of Reclamation
Wayne Parke - Assistant General Manager of Surface Mines--Old Ben Coal Company
Thomas Bethell, Research Director, UMWA
Carl Adams, Sub-District Manager, District 8, MESA

APPENDIX IV

Program For The
Cooperative Education Conference
March 31 - April 2, 1967
Louisville, Ky.

INTRODUCING

MARY BACON, Coordinator, Occupational Education, Somerset Community College, Somerset, KY 42501

SHANNON BAILEY, Graduate Assistant, Cooperative Education, Morehead State University, Morehead, KY 40351

STEVE CARROLL, Product Training Manager, Sales and Systems Education, Burroughs Corporation, 9403 Kenwood Road, Cincinnati, Ohio 45242

JOHN EVERSOLE, Director of Personnel, The Jefferson Club, Citizens Fidelity Bank Building, Louisville, KY 40201

LEE FREDERICK, Acting Chief, Cooperative Education Section, Department of Health, Education, and Welfare, Office of Education, Washington, D. C. 20202

DON HOLLOWAY, Morehead State University, Morehead, KY 40351

DON HUNT, Director, Cooperative Education, University of Detroit, 4001 W. McNichols Road, Detroit, Michigan 48221

JIM KEELER, WAVE-TV, Louisville, KY 40201

ROBERT KLINE, Associate Professor, Department of Political Science, Eastern Kentucky University, Richmond, KY 40475

RICHARD LEWIS, Chief, Administrative Assistant for Internal Affairs, Office of the Governor, Capitol Building, Frankfort, KY 40601

RUSSELL MCCLURE, ~~Assistant~~ Commissioner of Finance, Capitol Building, Frankfort, KY 40601

MARSHALL MCGHEE, Director, Central State University, 25 N. Kilmer Street, Dayton, Ohio 45415

HARRY NEWMAN, Manager, Personnel Selection and Development, Ashland Oil, Inc. Ashland, KY 41101

ROBERT NEWTON, Director, Cooperative Education, Morehead State University, Morehead, KY 40351

KEN NOAH, Coordinator, Cooperative Education Program, Eastern Kentucky University, Richmond, KY 40475

JOE PIERCE, Director, Cooperative Education, Speed Scientific School, University of Louisville, Louisville, KY 40201

WILLIAM RAMSEY, Dean of Labor, Berea College, Berea, KY 40403

CLAYTON RILEY, Western Kentucky University, Department of Business Education, Bowling Green, KY 42101

JANE ROGERS, Coordinator, Cooperative Education, Murray State University, Murray, KY 42071

TERRELL ROSS, Manpower Planner, Gateway Development District, Owingsville, KY 40360

ADA LEE SALISBURY, Program Coodinator of Cooperative Education, Ashland Community College, Ashland, KY 41101 and Co-Director, Kentucky Community College System Cooperative Education Training Program

GENE SCHOLES, Dean, Academic Affairs, Morehead State University, Morehead, KY 40351

KATHY SMOOT, Director, Cooperative Education, Southern West Virginia Community College, Williamson, West Virginia 25661

DON STARKEY, Director, Cooperative Education, Murray State University, Murray, KY 42071

KEITH STEPHENS, Coordinator, Federal Programs, University of Kentucky Community College System, Lexington, KY 40506 and Co-Director, Kentucky Community College System Cooperative Education Training Program

ISHMAEL STEVENS, Coordinator, Cooperative Education Training Program, Ashland State Vocational Technical School, Ashland, KY 41101

STANLEY WALL, Vice President, University of Kentucky Community College System, Lexington, KY 40506

CHARLES T. WETHINGTON, Jr., Assistant Vice President, University of Kentucky Community College System, Lexington, KY 40506

WALT WISNICKY, Coordinator, Retail Management, Hazard Community College, Hazard, KY 41701

REGISTRATION AND RESOURCE TABLE

RONALD L. CARTER, Coordinator, Cooperative Education, Prestonsburg Community College

PAULINE KLEIN, Secretary, Cooperative Education Training Program

ED RADJUNAS, Coordinator, Cooperative Education Ashland Community College

PEARL TUCKER, Coordinator, Cooperative Education, Paducah Community College

CAROL VASVARY, Secretary, Cooperative Education Training Program

---

Funded Through Title IV-D Training Grant of the University of Kentucky Community College System and the Cooperative Education Association of Kentucky

UIS-SP 318
—0476—

Cooperative Education CONFERENCE

EDUCATION – EXPERIENCE

March 31 and April 1-2, 1976

Ramada Inn
Hurstbourne Lane and I-64
Louisville, Kentucky

Sponsored jointly by
University of Kentucky Community College System
and the
Cooperative Education Association
of Kentucky

Funded Under Title IV, Part D, U.S.O.E.

WEDNESDAY, MARCH 31

"NEWCOMER'S DAY"

8:00 - 10:00 a.m.
REGISTRATION—Lobby

10:00 a.m.
WELCOME AND INTRODUCTIONS — Keith Stephens
Jeffersonian Room

10:15 a.m.
"Cooperative Education in the Kentucky Community College System" — Dr. Stanley Wall

10:45 - 11:45 a.m.
"Critical Factors in Co-op" — Marshall McGhee

11:45 a.m. - 12:00 p.m.
QUESTIONS AND ANSWERS

12:00 - 1:00 p.m.
LUNCH — Open

1:00 - 1:45 p.m.
Jeffersonian Room — Keynote Speaker: Russell McClure

1:45 - 2:15 p.m.
Jeffersonian Room
PANEL: "Faces of Cooperative Education" — Presiding: Ada Salisbury, Dr. Robert Newton, Ishmael Stevens, William Ramsey

2:15 - 2:30 p.m.
BREAK - Lobby

2:30 - 4:00 p.m.
SESSION A—Jeffersonian Room
TOPIC: Alternating Programs — Dr. Robert Newton, Don Starkey, Joe Pierce

2:30 - 4:00 p.m.
SESSION B—Mark Twain Room
TOPIC: Parallel Programs — Ada Salisbury, Shannon Bailey, Kathy Smoot

2:30 - 4:00 p.m.
SESSION C—Magnolia Room
TOPIC: Vocational/Technical — Ishmael Stevens, Dr. Clayton Riley, Walt Wisnicky

2:30 - 4:00 p.m.
SESSION D—Kentucky Room
TOPIC: Experiential Education — William Ramsey, Dr. Robert Kline

4:30 p.m.
SOCIAL HOUR: Suite 1172

6:00 p.m.
DINNER—Kentucky Room

7:00 - 8:00 p.m. — Keynote Speaker: Richard Lewis

THURSDAY, APRIL 1

"EMPLOYER'S DAY"

8:00 - 8:45 a.m.
REGISTRATION—Lobby

8:45 - 9:30 a.m.
STUDENT PANEL—Jeffersonian Room — Moderator: Dr. Robert Newton
Cooperative Education Scholarship Applicants

9:30 - 10:00 a.m.
BREAK—Lobby

10:00 - 12:00 noon
Jeffersonian Room
"The Co-Op Coordinator as a Salesperson" — Steve Carroll
Respondents: Lee Frederick, John Eversole, Ken Noah, Marshall McGhee

12:00 - 1:00 p.m.
LUNCH—Kentucky Room

1:00 - 2:30 p.m.
Jeffersonian Room
"Developments in Cooperative Education" — Don Hunt, Dr. Gene Scholes

2:30 - 3:00 p.m.
BREAK—Lobby

3:00 - 4:30 p.m.
Jeffersonian Room
"Employer's Perspective" — Presiding: Harry Newman, Jim Keeler, Terrell Ross

6:30 p.m.
Kentucky Room
BANQUET AND AWARDS PROGRAM — Presiding: Dr. Charles T. Wethington, Jr.
Keynote Address: Lee Frederick
Presentation of Awards

FRIDAY, APRIL 2

9:00 - 10:00 a.m.
SESSION A—Mark Twain Room
TOPIC: "Academic Credit" — Presiding: Don Hunt, Jane Rogers, Student

9:00 - 10:00 a.m.
SESSION B—Magnolia Room
TOPIC: "Evaluation Techniques" — Presiding: Steve Carroll, Don Holloway, Student

9:00 - 10:00 a.m.
SESSION C—Kentucky Room
TOPIC: "Supervision-Visitation" — Presiding: Mary Bacon, Harry Newman, Student

10:00 - 10:30 a.m.
BREAK—Lobby

10:30 a.m. - 12:00 noon — CEAK Business Meeting
Presiding: Ken Noah

12:00 noon
PROGRAM EVALUATION

Officers of the Cooperative Education Association of Kentucky

President
Ken Noah, Eastern Kentucky University

Vice President
Ada Salisbury, Ashland Community College

Secretary-Treasurer
Jane Rogers, Murray State University

Directors
Harry Newman, Ashland Oil and
Bill Penry, Union Carbide

APPENDIX V

University of Kentucky
Position Paper on Co-op Education

UNIVERSITY OF KENTUCKY
COMMUNITY COLLEGE SYSTEM

Position Paper
on
Cooperative Education

I. Philosophy

Cooperative education, one form of off-campus experiential education, is an educational process by which the student's academic study is formally integrated with periods of planned and evaluated work experiences related to the student's educational objective. The student usually receives both financial remuneration and academic credit.

The Community College System believes that meaningful and appropriate learning can occur outside the formal classroom setting. Recognizing that cooperative education is one way by which such extramural learnings can occur, the System provides the means whereby academic credit may be awarded to a student who is pursuing an associate in applied science degree when the work experiences are relevant to his degree objective.

It is the belief of the Community College System that student participation in cooperative education experiences should be voluntary. Therefore, when cooperative education is formally included in the program of studies leading to an associate in applied science degree, suitable options should be provided those students who elect not to participate. However, when certain programs mandate it, cooperative work experiences may be required.

Whether or not a community college provides cooperative education in any, in some, or in all the associate in applied science programs which it offers is a matter for the faculty and administration of that college to decide.

It is recognized that there are both advantages and disadvantages in offering cooperative education on either a parallel or alternating basis. Whether a college offering cooperative education chooses either one or both methods should be determined by the faculty and administration of that college, giving consideration to the curriculum, the needs of the students, the needs of the employers, and the resources available to the college.

It is the right of a receiving college to determine which credits earned in another college are acceptable to it. The constituent colleges of the Community College System not only accept credit for cooperative education from an accredited college or university, but also accept the credit in satisfaction of degree requirements, subject to the criteria for awarding credit for cooperative education established by the Community College Council.

The Community College System acknowledges that other approaches to experiential education may have occupational, academic and/or personal value. While recognizing the value of such experiences, the Community College System has not yet incorporated any of them into its educational program.

II. Objectives

The primary objective of cooperative education is to provide the student with planned and evaluated work experiences which will enhance the integration of theory learned in the classroom with the pragmatic requirements of the work situation.

Secondary objectives include learning how to work, selecting appropriate career goals, learning to work with others, and the broadening and deepening of the student's humanistic learnings.

In addition to the objectives relating directly to the student, it should be the conscious objective of the appropriate faculty of the college to update curriculum content so that the gap between classroom instruction and the reality of the present work situation is minimized.

III. Program

A. Planning

If a college decides to initiate a program of cooperative education, or if it decides to expand into program areas for which it has previously not offered such experiences, a suitable period of planning should be provided. A variety of factors will have an influence on the length of the required planning period.

Throughout the planning period, appropriate opportunities should be provided for the participation of the faculty, administration, students and advisory groups. In addition there should be assessment of the resources available with which to provide cooperative education in the selected program areas. The long-range plans of the college should be considered.

B. Development

The available work stations should be identified during the period of program planning and development. Potential employers must be familiarized with the philosophy and purpose of cooperative education within the Community College System. Attempts should be made to obtain in writing a commitment from each prospective employer of his willingness to participate in the program. The cooperative education model(s) to be used should be explored at this time.

C. Implementation

During the period of implementation, continuous communications among potential employers, faculty, administrators, program coordinators and cooperative education coordinator are essential. Also during this period, such agreements between the employer and the college as may be necessary or desirable are prepared and signed by the appropriate persons. The agreements should carefully delineate the responsibilities of the respective parties.

Students should be registered for cooperative work experience only when it is known that an appropriate work station is available and only after the agreements referred to above have been signed. In addition, training plans must have been developed and agreed to by all parties involved.

D. Evaluation

Provisions must be made for a continuous process of evaluation of the cooperative education experience by the students, faculty, work supervisors, program coordinators, and cooperative education coordinator. The evaluation should be based on behavioral objectives which were agreed upon prior to the beginning of the work experiences.

The faculty, with the assistance of appropriate program coordinators and the cooperative education coordinator, should periodically review the cooperative education program to determine that the program is educationally sound, that it is contributing to the objectives of the educational programs of the students, and is contributing to the overall educational objectives of the college.

IV. Justification and Resources

A. Market Suitability

If a college decides to explore the feasibility of offering a program of cooperative work experience, it should initiate a comprehensive survey within its service area to determine the availability of appropriate work stations for those program areas in which it offers an associate in applied science degree. The survey should attempt to determine the willingness of employers to participate in a cooperative education program; the number of work stations available immediately, as well as the projected number available in the future; the level of academic preparation required prior to the off-campus assignment; and the adequacy of the supervision at the work location.

The market suitability survey may have implications for curriculum and/or program changes.

B. Service Area

If a college considers implementing or expanding a cooperative education program, a conscious effort must be made to identify its service area for the particular program. Topographic, demographic and industrial data should be included in the determination of the service area as it relates to the cooperative education program.

The size of the service area may be larger if the cooperative work experiences are offered on an alternating basis rather than on a parallel basis. However, this is not always true. For example, limited funds for travel may preclude travel by the coordinators beyond the basic service area of the college.

C. Student Interest

The success of a cooperative education program is dependent to a significant degree upon the amount of student interest in participating in the program. A college considering the implementation or expansion of such a program will need to determine the level of student interest.

Colleges offering cooperative education who are considering expanding into new program areas can probably assume that student interest in the new program will be comparable to the level of interest in the existing programs. However, consideration should be given to any unusual or unique characteristics of the relevant programs and/or the students enrolled in them.

Colleges implementing a program of cooperative work experience for the first time can probably gain some insight into potential student interest from the experiences of other colleges where the program has been offered. In any event, a survey of students and potential students to determine their interest seems appropriate and desirable.

D. Financial Support

The decision to implement or expand a program of cooperative education implies a willingness on the part of the administration of the college to provide the financial resources necessary for the efficient and effective operation of the program. Certain budgetary support must be provided in addition to the salary of a coordinator of cooperative education or that of an instructor/cooperative work supervisor.

are responsible to their division chairmen, who in turn are responsible to the office of academic affairs. In such an organizational pattern, the position of coordinator of cooperative education has a staff relationship to the office of academic affairs and to the division chairmen.

The less-structured pattern of organization includes only instructor/cooperative work supervisors. The line of responsibility of such persons continues to be to the division chairman.

B. Role Differentiation

Coordinator of Cooperative Education - The coordinator's responsibility is primarily to serve as a liason between cooperating employers and potential cooperative employers and division chairmen, instructors, counselors, and students. This person's specific responsibilities should include the following: assist the instructor/cooperative work supervisor in identifying appropriate work stations; contact employers to promote cooperative arrangements; negotiate agreements with cooperating employers; assist the instructor/cooperative work supervisor in developing training agreements, in evaluating student performance and the adequacy of the work station, and in evaluating the educational value of the cooperative education experiences.

Instructor/Cooperative Work Supervisor - The instructor/cooperative work supervisor is responsible for the development of program and performance objectives for the cooperative work experience program in a subject area and for the students enrolled in it. This person also has the primary responsibility for the evaluation of students, the

adequacy of the work station, and the educational value of the cooperative work experience in his subject area.

In the final analysis, it is the instructor/cooperative work supervisor who links classroom instruction, work experience, and the student's career goal into a series of integrated, practical, learning experiences. To achieve this objective, the instructor/cooperative work supervisor shall have the specific responsibilities for negotiating employer agreements in the absence of a coordinator of cooperative education; preparing training plans for the students assigned to him and visiting such students on a regular basis at the place of employment; evaluating the student; and assigning the final grade.

Division Chairman - The division chairman has the same responsibilities for a program of cooperative work experience within the division as he has for all other educational programs of the division. This person has the responsibility for providing the leadership during the decision-making process leading to the decision to either provide or not provide cooperative work experiences in the associate in applied science programs assigned to the division. If the decision is to offer such a program, this person has the responsibility for directing the planning and implementation as well as the general supervision of the program after implementation in addition to the specific responsibility to make the instructor/cooperative work supervisor assignments within that division.

Employer - It is the responsibility of the employer to provide the student with work experiences which are consistent with the training plan and to provide on-the-job supervision and instruction which will assure the student of meaningful learning experiences relevant to his occupational goal.

The student shall be remunerated at a rate commensurate with the work performed. In no instance shall the pay be less than applicable minimum wage scales. The employer shall also provide such other benefits which are appropriate or required by law. Working conditions shall be such as to not endanger the health or safety of the student.

Evaluation of the student's work performance is the joint responsibility of the employer and the instructor/cooperative work supervisor.

Students - The students can expect to have clearly-defined objectives for a cooperative work experience but should also be aware that they are ultimately responsible for progress toward those goals. Students must be conscientious in fulfilling the responsibilities of their work situation, and keep the instructor/cooperative work supervisor informed about any problems or changes which affect college study or the cooperative work experiences. The students should be open-minded in evaluating their progress and be willing to discuss candidly all phases of employment with both the employer and the instructor/cooperative work supervisor.

Advisory Committee - The advisory committee can assist the college in assuring the quality of the cooperative work program by sharing its collective knowledge and experience with those responsible for the program.

The membership of the advisory committee should include students, graduates of the program area in which cooperative education is offered, representatives of cooperating employers, and potential cooperating employers. It is desirable that employer representatives include persons from various levels of management.

VI. Evaluation Criteria

The evaluation of the cooperative education program should be a continuous process and should include a regular assessment of the student's progress toward the attainment of specific performance objectives, of the work station as an experiential center providing learning experiences directed toward these objectives, and of the cooperative education program.

A. Evaluation of Students

The evaluation of the student should reflect the extent to which the person has achieved the objectives of an individual training plan. Assessments of both the student's job performance and personal development should be included in the evaluation process. Just as the training plan is the result of the joint effort of the student, the instructor/cooperative work supervisor, and the employer, so is the evaluation process. It should include inputs from the instructor/cooperative work supervisor based on regular site visits, but must also include inputs from the employer and the student.

B. Evaluation of the Work Station

Meaningful evaluation of the work station can only occur when there has been communication between college personnel, the student, and the employer which result in a clear understanding on the part of each of the purposes of cooperative education in general and of the objectives of the student's individual training plan. The evaluation procedures must provide for input by the student and by the employer. The instructor/cooperative work supervisor will add to these inputs the results of insights gained from personal observations and from interviews with the employer.

C. Evaluation of the Cooperative Education Program

It is recognized that the most accurate evaluation of the cooperative education program cannot be made until a college has several years' experience in offering the program. However, such a longitudinal evaluation is based in part on an accumulation of annual evaluations. Therefore, the procedures for evaluating the program should include an annual evaluation and a longitudinal evaluation.

The annual evaluation should include an assessment of student satisfaction, employer satisfaction, the extent to which the objectives of the training plan were achieved, and faculty support of the program.

In addition to the accumulation of annual evaluations, the longitudinal evaluation should attempt to determine whether students who have participated in the cooperative education program have

benefited therefrom in ways which are identifiable and measurable. A third component of the longitudinal evaluation of the cooperative education program should be an assessment of the impact the program has had on the curriculum and upon teaching methods.

The most important of the three components of the longitudinal evaluation is the determination of the benefits received, if any, by those participating in the cooperative education program when they are compared with those who elected not to participate.

VII. Program Operation

A. Credit

The Community College Council has approved awarding one (1) semester hour of academic credit for each eighty (80) hours of successful cooperative work experience. Cooperative education may be repeated to a maximum of ten (10) credits.

B. Grades

The grades A, B, C, D, E, I, and W are to be used when assigning grades to a student enrolled in cooperative education. If cooperative education is not a required course, the student may elect to enroll on a pass/fail basis.

C. Student Load

A student may enroll for no more than three (3) credit hours of cooperative education during any semester or summer session in which he is enrolled as a full-time student. An exception may be made only when an approved curriculum requires more than three (3) credits of cooperative education in a semester.

A student who is not enrolled for any other academic credit and who will be assigned to a work station on a full-time basis may, receive one hour of credit for each eighty hours of successful work experience, to a maximum of eight credits during the fall or spring semesters, two credits during the intersession, and four credits during the summer session.

D. Student Qualifications

Cooperative education is intended to integrate a student's academic study with periods of planned and evaluated work experiences related to his educational objective. It seems to follow from this definition that a student should not be assigned to a cooperative education work station until he has satisfactorily completed at least one course above the introductory level in the area of specialization he has elected. Except in unusual circumstances, a student should be not assigned to a cooperative education work station until he has completed the equivalent of one semester of full-time study.

One important function of a community college is to provide educational opportunities for those in its service area who are already employed on a full-time basis. Such persons often pursue an educational program related to their employment. Cooperative education, as defined by the Community College System, seems not to be intended for such students; therefore, only in very unusual situations should students be enrolled in cooperative education if the work station is to be the position they already occupy.

E. Levels of Experience

Repeated registrations in cooperative education should provide the student with work experiences which reflect the increased competencies resulting from his classroom learnings. This progression should be readily identifiable by a comparison of the successive training plans.

F. Records

Files should be maintained for each employer and for each student participating in the cooperative education program.

The file for the employer should contain a copy of the agreement between the college and the employer, the instructor/work supervisor's evaluation of the work experiences provided by the employer, and the student's evaluation of the work station.

The file for the student should contain a copy of the training plan, the employer's evaluation of the student's work performance, the instructor/work supervisor's evaluation of the student, and the student's evaluation of the work experience as it relates to his educational objective.

11/75

APPENDIX VI

Mini Conference
May 18, 1976

62

MINI-CONFERENCE

EXTENDING AND EXPANDING VOCATIONAL EXPERIENCES

May 18, 1976
Capital Plaza Tower
Ground Floor Auditorium
Frankfort, Kentucky

Dr. Floyd McKinney, Chairman

10:00 - 10:15 a.m.	Introduction and Agenda . . .	Chairman
10:15 - 10:30 a.m.	Welcome	Dr. Carl Lamar
10:30 - 11:15 a.m.	Project Presentation The Hardin County Research Project for Expanding the Present Vocational Experience Curriculum . . .	Ernest G. Thro, Project Director
11:15 a.m. - 12:30 p.m.	Lunch Break	
12:30 - 1:15 p.m.	Project Presentation The Rowan County Experiential Field Consortium	Jeanette Fannin, Project Director
1:15 - 1:30 p.m.	Break	
1:30 - 2:15 p.m.	Project Presentation A Study to Determine the Effects of a Comprehensive and Experiential System of Vocational Guidance and Career Development on Junior High School Pupils	Roger D. Vincent, Project Administrator
2:15 - 2:30 p.m.	Adjournment	

APPENDIX VII

West Virginia Surface Mining
Reclamation Inspector-In-Training
Letter and Specifications

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305

IRA S. LATIMER, Jr.
Director

May 5, 1976

Mr. George W. Kyle
Cooperative Coordinator
Mining/Reclamation Technology
Madisonville Community College
Madisonville, Kentucky 42431

Dear Mr. Kyle:

With reference to our recent telephone conversation and your subsequent letter, may I offer the following updated information.

The Reclamation Division has submitted to the West Virginia Civil Service Commission the attached job specification classifications for their consideration and hopeful approval. As you might note, we have recognized the Madisonville Community College program as well as that of Belmont Technical College in our classification of Surface Mining Reclamation Inspector In-Training specifications.

At the present time, until final action is taken, I would be unable to chart a course, however, I do not expect any problems and will be in touch at a later date.

Your interest in our programs is appreciated.

Best regards,

Benjamin C. Greene, Chief
Division of Reclamation

BCG:cn
Attachments

65

SURFACE MINING RECLAMATION INSPECTOR IN-TRAINING

NATURE OF WORK:

An employee in this class works under the close supervision of surface mining reclamation inspectors and supervisors, and serves an apprenticeship of one year, which will qualify for assignment to permanent employment as a surface mining reclamation inspector. All such employees shall be trained, equipped and conditioned for duty and services wherever and whenever required, as determined by the chief of the Division.

Work embraces concentrated training programs in surface mining regulation, land reclamation, rehabilitation of abandoned surface mined lands, mining methodologies, techniques and their application, Division of Reclamation policies and procedures, comprehensive natural resource conservation practices, and exercise of authority to obtain warrants.

As the employee progresses in the performance of assigned and statutory duties, conditional apprenticeship assignment will be made to a specific geographic area of the state, during which the employees exercises all authority and is assigned responsibility in accordance with the surface mining laws of West Virginia.

After one year, if the employee demonstrates proficiency in conducting surveys and inspections of surface mining operations, administration and enforcement of surface mining laws, and rules and regulations, and such other duties and services as may be prescribed by the Director, certification as a surface mining reclamation inspector will be completed.

REQUIRED KNOWLEDGES, SKILLS, AND ABILITIES:

General knowledge of principles and practices of Natural Resource management.

General knowledge of law enforcement practices and procedures.

Some knowledge of the fundamental principles of the natural sciences.

General knowledge of current research methods and technical information pertinent to surface mining reclamation.

Some skill to prepare technical reports and papers, with appropriate command of language and terms.

Some skill to perform chemical field tests as may normally be required and interpret results.

Some skill to read and interpret maps and fundamental technical plans or reports.

Ability to understand and carry out complex directions, both oral and written.

SURFACE MINING RECLAMATION INSPECTOR IN-TRAINING (Continued)

Ability to adapt to the established organizations of the Department of Natural Resources and the Division of Reclamation, and work effectively with other employees and surface mining reclamation inspectors in-training.

Ability to converse with governmental officials, industrial representatives, and the general public.

Ability to review reports and to make investigations and recommendations on the basis of such reports.

Ability to develop a knowledge of all federal and state laws and regulations pertaining to reclamation, surface mining, and related fields.

Ability to develop a thorough knowledge of operation and policies of the Division of Reclamation's program of surface mining enforcement.

MINIMUM TRAINING AND EXPERIENCE REQUIREMENTS:

Training: Graduation from an accredited four year college or university with a degree in a natural science field or graduation from a reclamation technology program approved by the Department of Natural Resources.

Substitution: (For promotion purposes only) Four years of full time employment in the field of surface mining reclamation, natural resource management or natural resource law enforcement.

Special Requirement: Must possess a valid license to operate a vehicle.

Pay Grade/Scale: Pay Grade 11 (1/1/76) $8,940 - $14,448

Reclamation Technology Programs approved by Department of Natural Resources.

1. Madisonville Community College
   University Avenue
   Madisonville, Kentucky

2. Belmont Technical College
   St. Clairsville
   Ohio 43590

APPENDIX VIII

Council for Surface Mining and Reclamation Research in Appalachia

File
AA RepT

COUNCIL FOR SURFACE MINING AND RECLAMATION

RESEARCH IN APPALACHIA

Business Meeting

May 25, 1976

Somerset, Pennsylvania

CALL TO ORDER

Chairman Bill Plass called the business meeting to order.

BUSINESS TRANSACTIONS

Mailings

Chairman Plass discussed how the Council could reimburse the Interstate Mining Compact for postage and mailings. It was decided that $2.00 would be added to the registration fee for meeting expenses.

Committees

Chairman Plass discussed the inability to get committees, as a whole, to instigate work that their committee may perform. It was suggested by Chairman Plass that the committee chairman would be retained on each committee and as work programs developed the committee would be expanded. This was unanimously agreed to by those present.

Nominating Committee

Discussion was to appoint a nominating committee to select candidates for offices to be elected for the Council at the next meeting. Chairman Plass appointed three members as follows:

Chairman - Mr. Ben Greene, Chief
Division of Reclamation
West Virginia Department of Natural Resources
1800 Washington Street, East
Charleston, WEst Virginia 25301

Mr. Russell J. Hutnik
Forest Resources Laboratory
Penn State University
University Park, Pennsylvania 16802

Mr. Thomas G. Zarger
Tennessee Valley Authority
Division of Forestry, Fisheries
and Wildlife Development
Norris, Tennessee 37828

Accreditation of Technician Schools by the Council

Chairman Plass introduced Mr. Patrick Angel of the Madisonville Community College, Madisonville, Kentucky. Mr. Angel proposed that the Council establish itself as an accredidation body to monitor training programs for the many schools that have or will set up reclamation technology programs. The Council will determine if a school's program warrants certification of its graduates. The aims of such an accredidation body would be to discourage a proliferation of training schools and to monitor each school's on-going training program. It was pointed out by Mr. Angel that the Council could become a "programmatic accredidation group" by submitting application to Mr. John Profitt, Commissioner, Bureau of Higher Education, Washington, D.C. A minimum standard would have to be developed by the Council and the quality of instruction would be monitored by the Council. Motion was made by Mr. John W. Sturm and seconded by Mr. Russell Hutnik that the Council appoint a committee of three to contact Dr. Profitt and obtain necessary criteria for accredidation and contact other organizations that would have an interest in such a program. This appointed committee would report back to the Council at the next meeting. The motion carried unanimously. Chairman Plass appointed:

Chairman - Mr. Patrick Angel
Madisonville Community College
Madisonville, Kentucky 42431

Mr. Steve Layton
Maryland Department of Natural Resources
Box C
Westernport, Maryland

Mr. John Sturm
West Virginia Surface Mining and
Reclamation Association
1624 Kanawha Boulevard, East
Charleston, WEst Virginia 25311

Next Meeting

It was unanimously agreed that the next meeting be held in Louisville, Kentucky, in conjunction with EXPO III in October. Chairman Plass stated that when date, time and site information was finalized, notification would be sent to all Council members.

APPENDIX IX

American Mining Congress
Session Papers

72

OPENING SESSION — SET NO. 1

Keynoter
Ian MacGregor, *Chairman, American Mining Congress and Chairman, AMAX Inc., New York*

Developing the Nation's Coal Reserves
Thomas S. Kleppe, *Secretary of the Interior*

Effect on National Economy of Mid-Century Energy Policy
Herbert S. Richey, *Chairman, Chamber of Commerce of the United States, and President, Valley Camp Coal Co., Cleveland*

The Development of the European Coal Industry
John Mills, *Member, National Coal Board, and President of the U.K. Institution of Mining Engineers, London*

MANAGEMENT — SET NO. 2

Chairman: David Werner, *Senior Vice President and Executive Assistant to the President*, Consolidation Coal Co., Pittsburgh

Cochairman: Alvey B. Rushton, *Executive Vice President, Operations*, Valley Camp Coal Co., Cleveland

Coal Production Costs for Electric Utilities
William J. Leininger, *Manager*, Ernst and Ernst, Washington

Manpower and Management Training and Development
Steve W. Zanolli, *Vice President, Industrial Relations*, Kaiser Industries Corp. and Kaiser Steel Corp., Oakland

Transportation Requirements of Coal to the Market Place
James W. Boone, *Chief of Railroad Economics*, Federal Railroad Administration, U.S. Department of Transportation, Washington

Labor Relations and the Coal Industry
Joseph P. Brennan, *President*, Bituminous Coal Operators Association, Washington

LONGWALL MINING — SET NO. 3

Chairman: W. G. Kegel, *Vice President, Mining*, Cerro-Marmon Corp., Pittsburgh

Cochairman: D. A. Zegeer, *Division Superintendent*, Beth-Elkhorn Corp., Jenkins KY

Longwall Mining at Kaiser
Sunnyside Mines
John Palacios, *Longwall Superintendent* and Earl R. White, *Mining Engineer*, Kaiser Steel Corp., Sunnyside UT

York Canyon Mine
Harry Elkin, *Longwall Superintendent* and William E. Sikes, *Mining Engineer*, Kaiser Steel Corp., Raton NM and
David Wisecarver, *Supervisory Mining Engineer*, U.S. Bureau of Mines, Denver

Dutch Creek's Advancing Longwall
M.J. Turnipseed, *Longwall Supervisor*, and John A. Reeves, Jr., *Assistant to Longwall Supervisor*, Mid-Continent Coal & Coke Co., Carbondale CO

Longwall Communications
Edward A. Leish, *Longwall Superintendent*, Greenwich Collieries Corp., Ebensburg PA

British Research in Longwall Mining
P. G. Tregelles, *Director*, Mining Research and Development Establishment, National Coal Board, Burton-on-Trent

RECLAMATION — SET NO. 4

Chairman: Edwin C. DeMoss, *Senior Vice President*, Utah International Inc., San Francisco

Cochairman: J. F. Ratchye, Peter Kiewit Sons' Co., Dayton WY

Public Information—Industrial Involvement
Charles W. Margolf, *Director of Western Coal Operations, Mining Division*, W. R. Grace & Co., Englewood CO

A Landscape Architect Looks at Site Planning and Surface Development of Coal Mining
Edward H. Greenwald, Jr., Resource Engineering and Management, Inc., Pittsburgh

Soil Reconstruction: Selecting Soil Material for Surface Placement in Surface Mine Reclamation
Donald E. McCormack, *Soil Scientist*, Soil Conservation Service, U.S. Department of Agriculture, Washington

Impact of Higher Ecological Costs and Benefits on Surface Mining
William E. Foreman, *Associate Professor, Mining Engineering*, Virginia Polytechnic Institute and State University, Blacksburg

PAPERS ARE BEING PRINTED BY SESSION TO REDUCE PRINTING AND HANDLING COSTS

UNDERGROUND FACE OPERATIONS — SET NO. 5

Chairman: John M. Farley, *Vice President, Raw Materials*, Jones and Laughlin Steel Corp., Pittsburgh

Cochairman: Clark D. Todd, *Vice President, Industrial Engineering*, Clinchfield Coal Co., Lebanon VA

Trends in Coal Mining Systems—Conventional, Continuous, Longwall, Shortwall
Donald Hunter, *Assistant to Vice President—Engineering*, Island Creek Coal Co., Lexington KY

Penetration of Hard Rock for Roof-Bolt Holes
Joe Subrick, *Assistant General Superintendent*, United States Steel Corp., Gary WV

Mine Power Systems Transients
Lloyd A. Morley, *Associate Professor of Mining*, Pennsylvania State University, University Park

Hydraulic Transportation of Coal from the Face
James M. Link, *Director, Mining Division*, Colorado School of Mines Research Institute, Golden

SAFETY AND HEALTH — SET NO. 6

Chairman: Robert E. Barrett, *Administrator*, U.S. Mining Enforcement and Safety Administration, Arlington VA

Cochairman: James H. Morley, *Vice President, Public Affairs*, The North American Coal Corp., Indiana PA

Solving Safety Problems Related to Surface Mining
John A. Stachura, *Health and Safety Director*, AMAX Coal Co., Indianapolis

Overview of International Coal Mining Health-Safety-Extraction R&D
Joseph J. Yancik, *Assistant Director, Mining*, U.S. Bureau of Mines, Washington

Panel: Factors Involved in Design and Retrofit for Cabs and Canopies
Continuous Miners
E. M. Warren, *Director of Engineering*, Joy Manufacturing Co., Franklin PA

Shuttle Cars
Maurice K. LeBegue, *Manager, Engineering*, National Mine Service Co., Ashland KY

Roof Bolters
J. Robert Fletcher, *President*, J. H. Fletcher & Co., Huntington WV

Chairman: Carl B. Jacobs, *President*, Inland Steel Coal Co., Chicago

Cochairman: E. T. Moroni, *Vice President, Operations*, Old Ben Coal Co., Chicago

Safety as a Partner in Increased Productivity
Gealy W. Wallwork, *President*, Florence & Helen Mining Companies, Seward PA

A Review of Instrumentation and Automation to Improve Mine Safety
John N. Murphy, *Research Supervisor*, U.S. Bureau of Mines, Pittsburgh

Use of Venturi Type Water Sprays on Continuous Miners
Woods G. Talman, *Consultant*, Pittsburgh, and R. C. Miles, *Associate Research Consultant*, U.S. Steel Corp., Monroeville PA

Remote Control Mining and Continuous Roof Bolting
Frank G. Miller, *Supervisor*, Edwin B. Wilson, *Engineer*, Donald E. Raab, *Engineer*, and James C. Weimer, *Engineer*, Coal Preparation and Mining Research, Homer Research Laboratory, Bethlehem Steel Corp., Bethlehem PA

SURFACE MINING OPERATIONS — SET NO. 7

Chairman: Thomas V. Falkie, *Director*, U.S. Bureau of Mines, Washington

Cochairman: H. Elkins Payne, Jr., *Senior Vice President, Operations*, AMAX Coal Co., Indianapolis

Multiple Seam Mining—New Techniques
Hubert D. Hagen, *Senior Vice President*, The Drummond Co., Jasper AL

Application of Wheel Excavator to Thick Coal Seams and Overburden
Donald D. Marmon, *Vice President—Western Operations*, Consolidation Coal Co., Englewood CO

Vibrations and Air Blasts Related to Method of Initiating
Paul H. Miller, *Physicist*, Reynolds Experimental Laboratory, Atlas Powder Co., Tamaqua PA

Coal Mine Permits—the Importance of Timing
James R. Jones, *Director, Environmental Quality*, Peabody Coal Co., St. Louis

UNDERGROUND MINING SERVICE OPERATIONS — SET NO. 8

Chairman: Stonie Barker, Jr., *President and Chief Executive Officer*, Island Creek Coal Co., Lexington KY

Cochairman: Glen E. DeRusha, *Manager, Coal Mines*, Republic Steel Corp., Uniontown PA

Review of Diesel Utilization
Joseph Patrick, *Staff Engineer*, David Forshey, *Staff Engineer*, U.S. Bureau of Mines, Washington, and John N. Murphy, *Research Supervisor*, U.S. Bureau of Mines, Pittsburgh

Review of AC/DC Solid State Controls
Charles R. Walter, *Consultant, Advance Engineering Projects*, General Electric Co., Bloomington IL

Handling Waste Rock at Warwick Mine
John C. Draper, *Mining Engineer*, Duquesne Light Co., Greensboro PA

Five Years of Operating Experience with 950 Volt Continuous Miners
R. A. Cairns, *Chief Electrical Engineer*, Australia Iron & Steel Pty. Ltd., Wollongong

COAL PREPARATION — SET NO. 9

Chairman: Elza F. Burch, *Manager of Preparation*, Island Creek Coal Co., Lexington KY

Influence of Coal Waste Disposal Regulations
S. Anthony Stanin, *Physical Scientist*, U.S. Mining Enforcement and Safety Administration, Arlington VA

Assessment of Latest Technology in Coal Refuse Pile Fire Extinguishment
David R. Maneval, *Science Advisor*, Appalachian Regional Commission, Washington

Reduction of Environmental Noise Levels at the Meadow River No. 1 Preparation Plant
David G. Chedgy, *Assistant Director of Preparation*, Roberts & Schaefer Co., Chicago

Thermal Dryer Exhaust Stack Emission Sampling
G. William Kalb, *President*, Tradet Inc., Columbus OH

Chairman: Robert L. Frantz, *Head*, Department of Mineral Engineering, Pennsylvania State University, University Park

Cochairman: R. E. Blankenship, *Director*, Coal Processing & Development, Raven Smokeless Coal Co., Richlands VA

Latest Progress in Sulfur, Moisture, and Ash Reduction Coal Preparation Technology
W. E. Wamke, *Senior Staff Metallurgist*, U.S. Bureau of Mines, Washington, and Albert W. Deurbrouck, *Chief, Coal Preparation and Analysis Group*, U.S. Bureau of Mines, Pittsburgh

Application and Performance Results of Baisc Jigs Processing Fine Coal at Old Ben Mine No. 26, Sesser, Illinois
W. D. Hake, *Chief Engineer, Underground Mines*, Old Ben Coal Co., Benton IL

Preparation Plant Corrosion Cost
Bobby M. Grimm, *Preparation Manager*, Inland Steel Coal Co., Sesser IL

Closed Circuits for Coal Preparation Plants
Donald K. Cooper, *Assistant Director, Coal Preparation and Distribution*, U.S. Steel Corp., Pittsburgh

SEE REVERSE SIDE FOR ORDER FORM

73

APPENDIX X

Letter From Mr. Perry
And Project Budget For 1977

COMMONWEALTH OF KENTUCKY

Department of Education

BUREAU OF VOCATIONAL EDUCATION

FRANKFORT 40601

MEMORANDUM

TO: Mr. Keith Stevens

FROM: Lou Perry

DATE: June 4, 1976

SUBJECT: Revised Budget -- Mining Co-Op Program

As per our discussion recently, I am attaching the revised budget for the "Mining and Reclamation Cooperative Education Program" in FY'77. As a result of limited funds for the "Exemplary Plan - FY'77," we are having to make adjustments in project budgets before final approval.

I do not feel that the adjustments will alter the scope of the effort. Object code 305 (Printing and Advertising) is the most affected line item, and the activities here can continue in consultation with our Coordinator of Information Dissemination.

Please review, and if you have any questions, let me know. I plan to submit this proposal for final approval in the very near future.

LP/dsh

Attachment

cc: Dr. Harold Massey
Mr. Bill Hatley
Dr. Janie L. Jones

PROJECT BUDGET

Project Title: Mining and Reclamation Cooperative Education Program

ANTICIPATED EXPENDITURES	TOTAL AMOUNT	SOURCE OF FUNDS		
		Part D	MCC	
101 Payroll Salaries	19,561.00	19,561.00		
104 Contracted Prof. Services				
109 Occasional Labor				
TOTAL PERSONAL SERVICES	19,561.00	19,561.00		
301 Postage, Freight and Express				
302 Telephone and Telegraph	450.00	450.00		
304 Travel - (In-State)	1,326.00	1,326.00		
305 Printing and Advertising	400.00	400.00		
307 Maint. of Vehicles and Equip.				
315 Out-of State Travel Expenses	300.00	300.00		
319 Data Processing Supplies				
321 Office Supplies	300.00	300.00		
330 Commercial Supplies				
334 Classroom Supplies				
340 Office Equip. - Unit Cost Under $300.				
342 Instructional Equip. - Under $300.				
351 Rental of Building				
352 Rental of Equipment				
371 Subscriptions - (Non-Library)				
372 Miscellaneous	500.00	500.00		
390 Computer Rental				
TOTAL CURRENT OPERATING EXPENSES	3,276.00	3,276.00		
601 Office Equip. - Unit Cost Over $300.	2,500.00		2,500.00	
604 Instructional - Unit Cost Over $300.				
607 Books for Institutions & Libraries				
609 Other Capital Outlay				
TOTAL CAPITAL OUTLAY	2,500.00		2,500.00	
TOTAL ANTICIPATED EXPENDITURES	25,337.00	22,837.00	2,500.00	

76

APPENDIX XI

New Brochure

77

Hydraulics Unit
(633) hours)

1. Hydraulic Introduction
2. Hydraulic Pumps
3. Hydraulic Valves
4. Hydraulic Pressures and Testing Procedures
5. Hose and Transmission Lines
6. Hydraulic Circuits
7. Fluid Properties (use & care)
8. Hydraulic Schematic & System Diagrams
9. Hydraulic Symbols & Diagrams

Electrical Units
(653 hours)

1. Intro. and Basic Theory
2. Circuit and Conductors
3. AC & DC Circuits
4. Magnetism
5. DC Motors
6. DC Motor Control
7. AC Current & Industion
8. AC Motors
9. AC Motor Control
10. Transformers
11. Meter & Testing Procedures
12. Electrical Mine Law & Permissibility

Mechanical Units
(634 hours)

1. Mechanical work on loading machines
2. Mechanical work on shuttle
3. Mechanical work on pinners
4. Mechanical work on cutting machines
5. Mechanical work on coal drill

MADISONVILLE COMMUNITY COLLEGE RECLAMATION TECHNOLOGY COURSE OF STUDY

	Sem. Hr. Credit
First Semester:	
ET 030 Intro to Coal Mining and Reclamation	1
CMS 151 Composition for Technical Students I or	3
ENG 101 Freshman Composition	(3)
CAR 141 Intro. to Surveying and Mapping	3
ET 100 Engineering Problems (slide rule) & Calculator	1
MA 109 Algebra	3
MA 112 College Trigonometry	2
SP 181 Basic Public Speaking	3
CE 105 Basic Engineering Graphics	2
	18
Second Semester:	
CHE 100 Introductory Chemistry or	4
CHE 101 Chemistry: A Cultural Approach I and	(3)
CHE 111 General Chemistry Laboratory I	(2)
CMS 152 Composition for Technical Students II or	3
ENG 102 Freshman Composition	(3)
ET 135 Plane Surveying I or	3
ET 100 Plane Surveying	(3)
GEN 104 Agricultural Plant Sciences	4
	14(15)
Third Semester:	
AG 187 Grasses & Legumes	2
ET 280 Water Drainage and Management	4
GLY 140 General Physical Geology	4
ET 281 Spoil Reforestation	3
ET 154 Spoil Management	4
	17
Fourth Semester:	
CAR 142 Fundamentals of Aerial Photography	3
GLY 142 General Historical Geology	4
ET 282 Elements of Reclamation	4
ET 275 Mine Management	3
ET 175 Practicum in Reclamation Technology	3
	17
Total Hours	64(66)

THE 600 YEAR CAREER OFFERED TO YOU THROUGH THE MINING AND RECLAMATION TECHNOLOGY CO-OP PROGRAM

Offered by:

Madisonville Community College
and
Madisonville State Vocational
Technical School
Madisonville, Ky. 42431

A very important and necessary cooperative project has begun in the Western Kentucky Coal Field. The Madisonville Community College, Madisonville State Vocational Technical School, and area mining companies have joined forces for the purpose of training individuals in the fields of Mining Reclamation Technology. Individuals will be trained for supervisory and technical staff positions.

Madisonville State Vocational School will play a major role in the training of the Mining Technologists. Along with their own course of offerings of General Mining and Operation, Hydraulics, Electricity, and Mechanics, they are opening their doors to the Community College students for training in courses such as hydraulics, electricity, and other mining courses.

AN EARN AND LEARN PROGRAM

The cooperative education program in Mining and Reclamation Technology is a work-study program whereby a person alternates semesters of on-the-job training with study at Madisonville Community College and Madisonville State Vocational School. An associate degree in either Mining or Reclamation Technology will be awarded for completion of the two year programs.

Cooperating companies provide employment to the student as a Mining and Reclamation trainee during his work periods. The student earns money and college credit while in the working phase.

Students completing 100% of the courses and receiving an associate degree in mining technology from MCC will be awarded a two year underground credit toward the assistant mine foreman's certification.

PURPOSE

A critical shortage of well-trained Mining and Reclamation Technologists exists with many companies in the mining industry. Madisonville Community College and Madisonville State Vocational School have joined together in these two programs to help alleviate this shortage.

ELIGIBILITY AND COST

Anyone who is a graduate of an approved high school or who is 19 years of age is eligible to apply for the program. Resident—full-time $195.00; non-resident—full-time $490.00. Part-time—resident and non-resident $17.00 per credit hour (less than 12 hours per semester).

MADISONVILLE COMMUNITY COLLEGE MINING TECHNOLOGY COURSE OF STUDY

First Year

First Semester:	*Sem. Hr. Credit*
CE 105 Basic Engineering	2
ENG 101 Freshman Composition or	3
CMS 151 Composition for Technical Students	(3)
ET 030 Intro. to Coal Mining and Reclamation	1
ET 100 Engineering Problems (slide rule) & Calculator	1
ET 105 Mechanics 1 - Statics and Strength	3
GLY 140 General Physical Geology	4
MA 109 Algebra	3
MA 113 Trigonometry	2
	19
Second Semester:	
CE 231 Elements of Mining	3
ENG 102 Freshman Composition or	3
CMS 152 Composition for Technical Students II	(3)
ET 110 Electric Circuits and Components I	4
ET 150 Mining Laws	3
ET 135 Surveying I	(3)
	16

Second Year

First Semester:	
ET 162 Fundamentals of Industrial Engineering	3
ET 235 Surveying II	3
ET 270 Mining Mechanics	5
ET 272 Coal Preparation	3
ET 269 Hydraulics	4
	18
Second Semester:	
ET 263 Sampling and Analysis of Coal	4
ET 273 Mining Economics	3
ET 274 Mine Safety	3
ET 275 Mine Management	3
HPR 130 First Aid & Emergency Care	2
	15
Total Hours	68

MADISONVILLE STATE VOCATIONAL TECHNICAL SCHOOL

GENERAL INFORMATION AND COURSE OFFERINGS

The mine maintenance trainee is trained to perform specific functions on equipment in underground mining. The trainee also acquires basic skills and knowledge in all other areas of general mining.

The course of study is for 22 months and is divided into four units: general mining and operations, mechanical, hydraulics, and electrical.

COST

There is an initial registration fee of $5.00 and a $4.00 per month tuition cost. Books for the course will cost approximately $25.00. Students are required to furnish their own miner's cap and shoes.

ELIGIBILITY

1. There are no educational requirements.
2. The student must have a physical examination with a signed form stating that he is capable of working in the underground mines.
3. High school courses in industrial arts, science, math, electricity, and mechanical drawing are recommended.

COURSE OFFERING

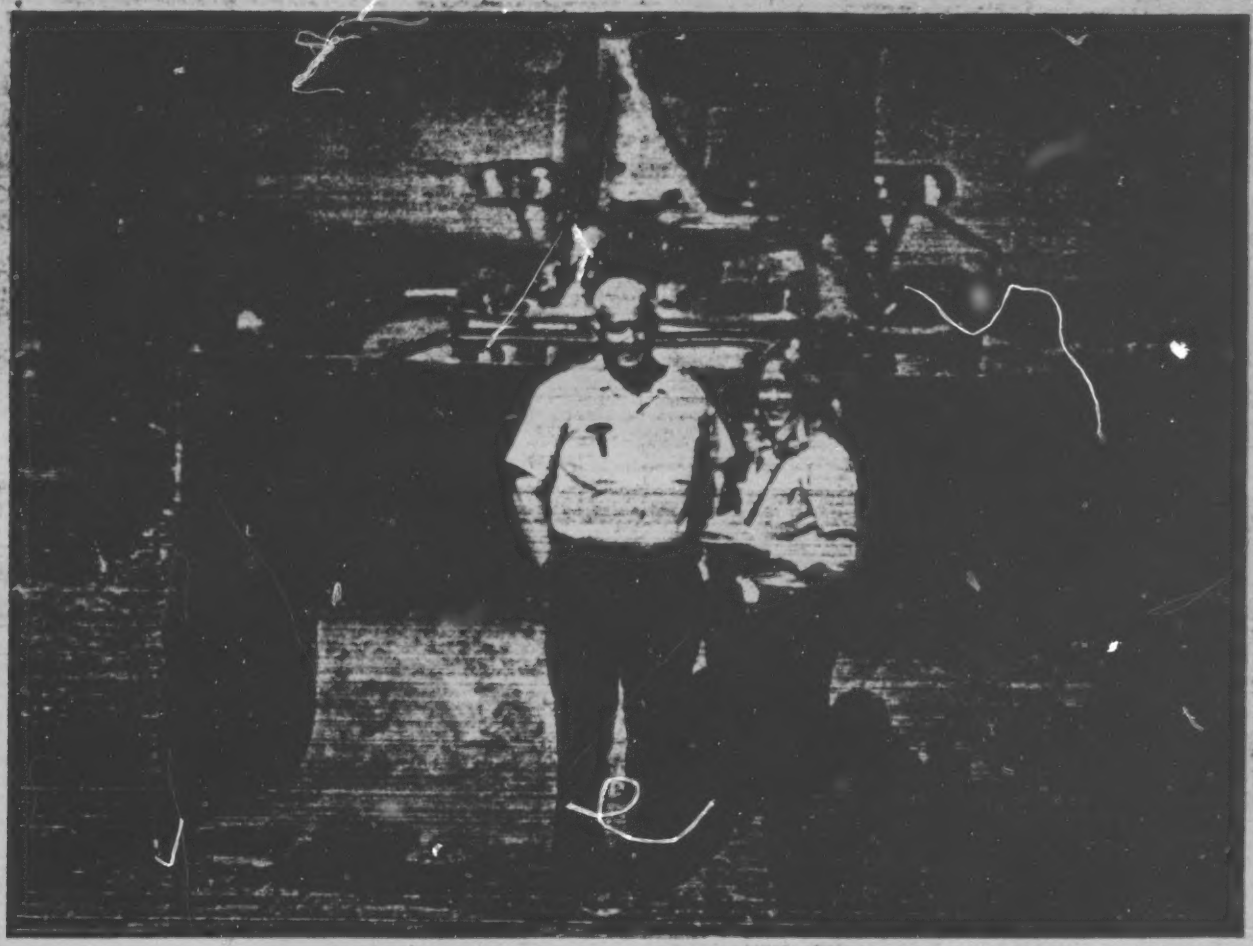
General Mining and Operations Unit

(720 hours)

1. Mine Laws
2. Ventilation
3. Gases
4. Roof Control
5. Blasting
6. Safety Equipment
7. First Aid
8. Rescue
9. Rock Dusting
10. Geology
11. Fires and Explosion Prevention
12. Equipment Operation

APPENDIX XII

Newspaper Clipping
Lady Reclamation Inspector



Nevard Wells, area supervisor of Prestonburg Division of Department of Reclamation, stands with Sherry Mallory, co-op student from Muhlenberg County. The picture was made at a strip mine in Eastern Kentucky.

Learning reclamation in 520 easy daily lessons

Cooperative job training program

By Jenny Pulliam

Frankfort – Studying an introduction to coal mining doesn't mean that a person knows all there is to know about the business. In fact, it wasn't until working in eastern Kentucky that one western Kentucky student realized how different the types of strip mining and reclamation could be.

That student is Sherry Mallory of Drakesboro, who is now working in the Prestonsburg office of the division of reclamation in the Kentucky Department for Natural Resources and Environmental Protection. She's one of five students in the reclamation degree program of Madisonville Community College who are participating in a cooperative on the job training program with the state reclamation division.

The eighteen - year - old Muhlenberg County native said that she began the reclamation degree program because of her background and home environment. Being from the western Kentucky coal country, she's always been familiar with strip mining and deep mining. And, her brother is an assistant foreman at the same underground deep mine where her father is the mine foreman – Brown Badgett.

Since she started classes at the college in August, Mallory has not only studied general studies courses, such as algebra and English, but has also studied more specialized reclamation courses, such as grasses and legumes, geology and mapping and surveying. Mallory continued, "Another of our courses is a public speaking class that will help us in dealing with everyone from coal operators to government environmental officials to concerned citizens."

Mallory added, "Our introduction to coal mining course is really just that – an introduction. There's so much to learning the different types of coal mining and different types of reclamation that each day brings a new lesson."

Mallory said that the courses she takes are part of a two year work-study program in which the student alternates semesters of on-the-job training in the division of reclamation with study at Madisonville Community College. During the work phase, she is paid as a full-time seasonal employee of the division of reclamation. And, during the school phase, she studies reclamation technology as a full-time student.

Mallory has been going out with each of the Prestonsburg reclamation inspectors on their daily checks. Much of her time is spent with Ann Nuckols, who's one of the state's three women inspectors.

While working at the Prestonsburg field office, Mallory has been doing many of the things the inspectors do. Besides assisting them in making measurements and observations in the field to determine compliance with regulations, she also checks compliance with maps and monuments and measures outslopes and bench widths. She performs elementary-type chemical field tests for spoil and water and helps the inspectors "walk out" new permits, a system of measuring the limited area on which the company may mine.

Other possible duties for Mallory include compiling technical reports, filling out forms, and preparing maps in the office. She could also be assigned to assisting in the investigation of complaints and helping inspectors conduct tours of strip mined areas.

Mallory expects to work with the division of reclamation when she finishes her courses and receives her reclamation technology degree. A big plus with a reclamation job, she said, is the prospect of working out-of-doors. Even though she likes eastern Kentucky, she would rather work in the western Kentucky regional office that's closer to home, if she should get a job with the division after finishing school.

Sherry is the daughter of Mr. and Mrs. Willie R. Mallory of Route 1, Drakesboro, and is a graduate of Drakesboro High School.

82

APPENDIX XIII

Rec Tech Gazette

The Rec Tech GAZETTE

THE OFFICIAL NEWSLETTLER FROM THE
RECLAMATION TECHNOLOGISTS OF AMERICA

VOLUME NO. 1 | MAY, 1976 | MADISONVILLE, KENTUCKY 42431

FIRST IN THE NATION

M.C.C. Reclamation Students Organize

Again, M.C.C. is first in the nation by establishing a reclamation student organization.

The Reclamation Technologists of America has met several times during the semester, accomplishing the preparatory business of creating committees, drawing up a constitution, and selecting officers and chairpersons. This has been preliminary to the advancement of ideas for club projects, including much needed social functions and projects of community service and education. There will also be learning-experience situations for us. For example, it's possible that we may manage the planting of a turf for an all-purpose athletic field on the college campus. We will also have reclamation-related projects to raise money.

We have these primary objectives: to promote fellowship and professionalism among reclamation students; and to be of service to the college, the reclamation community and the public by working in their, and our, interest.

There is an immediacy for the solid establishment of this club because the reclamation community is filling an important niche in our society created by increased production by the surface mining industry to fill our energy needs. This spaceship Earth daily needs every acre used productively and efficiently. Our part in this is the management of poor conditions into better land by using knowledge and skills synthesized from various fields. We are a unique lot and this club can serve a vital function.

The preamble to the club's constitution says, *"When in the interest of our environment it becomes necessary to organize into a group . . . with our main purpose the betterment of our environment through reclamation of spoils and conservation. . ."* then we will ask you to join us and discuss plans for the future. – ***LEE STONE***

R.T.A.'s First Project Proves Successful

During several weeks in April, R.T.A. members provided labor, supplies and equipment to plant — according to a research plan provided by Rufus H. Allen, Jr. of the U.S. Forest Service at Berea, Kentucky — a total of 20,000 trees on strip mine spoil in Western Kentucky.

The club *and* members not only earned money on the project, but also obtained good *hard core* reclamation experience by planting trees on spoil.

The objective of the study by the U.S.F.S. is to determine the effect of interplanting cover cropping, fertilizing and mulching on the survival and growth of several hardwood crop trees species planted in surface-mined spoils.

Kyle New Co-Op Coordinator for Reclamation & Mine Tech

George W. Kyle recently was named by Dr. G. Harold Massey, director of Madisonville Community College, and B.M. Hatley, regional director of vocational Region 11, to head the MCC and vocational region's innovative mining and reclamation technology cooperative program.

Kyle is a native of Dawson Springs. He is a graduate of the University of Kentucky, who left the U.S. Army as a regular Army Major to become vice president of an aviation corporation in New York. Kyle returned to Kentucky, where he was employed at the Commercial Bank of Dawson Springs.

When asked about his mining and reclamation experience, Kyle stated, "I started operating a bulldozer and other heavy equipment in the surface mining operation for my father and grandfather at the age of 13. The men in my family have been coal miners in West Kentucky since coal was first mined here. I have one uncle who has worked underground for 40 years and my father is still in the industry, so some of that coal dust was bound to rub off."

Kyle added, "The mining and reclamation program has really taken off here. Prospective mining and reclamation students have a unique and special opportunity in Madisonville not found anywhere else in the United States. Anyone interested in this program should drop me a line at Madisonville Community College, or call me at 502/821-2250, ext. 56."

84

EUROPEAN MINING TOUR SPONSORED BY MCC RECLAMATION & MINING DEPARTMENT

A sixteen-day, six-country, European mining tour is planned for this summer and sponsored by the Reclamation and Mining Department of the Madisonville Community College.

The touring students and others interested in mining will visit mines and taste a bit of foreign atmosphere while in England, Wales, Belgium, Germany, Luxembourg and France.

An itinerary of the trip follows. Anyone interested in the tour please contact Pat Angel at the college.

DAY ONE
Depart Evansville for flight to Chicago/New York to connect with Trans-Atlantic flight to London.

DAY TWO
Morning arrival in London. Transfer to hotel and check-in. Balance of day at leisure.

DAY THREE
Morning sightseeing tour of London. Return to hotel at noon, afternoon and evening at leisure.

DAY FOUR
Morning departure from London via air-conditioned motorcoach to Nottingham. Overnight at Nottingham.

DAY FIVE
Continue trip from Nottingham to Mansfield to visit Lound Hall coal museum, then on to St. Helen's for overnight. Stops made at mines enroute.

DAY SIX
St. Helen's to Cardiff via Birmingham with stops at local mines. Overnight in Cardiff.

DAY SEVEN
Full day visit to Cardiff mines. Overnight in Cardiff.

DAY EIGHT
Continue trip from Cardiff, through Bristol with stops in area mines and back to London for overnight.

DAY NINE
Fly from London to Brussels. Remainder of day at leisure.

DAY TEN
Morning visit to mines in Brussels area. Afternoon, motorcoach trip to Cologne for overnight.

DAY ELEVEN
In Cologne with full day tour to Ruhr area for visit to mines and mining museum center. Return to Cologne for overnight.

DAY TWELVE
Depart Cologne to board Rhine River steamer for two hour cruise, then continue trip to Heidelberg for overnight.

DAY THIRTEEN
In Heidelberg for tour to salt mines.

DAY FOURTEEN
Depart Heidelberg for Luxembourg traveling through the Sahrbrucken area to visit unique French mines. Overnight in Luxembourg.

DAY FIFTEEN
Luxembourg to Paris for overnight.

DAY SIXTEEN
Full day in Paris at leisure/or return flight to U.S.

DAY SEVENTEEN
Return flight to U.S. (if Day 16 spent in Paris).

Notes on Reclamation Co-op

The Reclamation Co-op program continues to gather strength and numbers. More and more government agencies and industry are exhibiting a keen interest in providing work stations for reclamation students. The newest entries in the field are: Department of Army, Corps of Engineers, TVA, McCoy & McCoy Water, Donan Engineering, West Virginia Division of Reclamation and the Virginia Division of Reclamation.

These organizations recognize the many benefits of cooperative experience both for the *student* and *themselves*. Many have indicated to me that they believe a man with a degree who has worked for them and trained in their business is much more highly qualified for permanent employment than a person with a degree who has *no* work experience. Many students have said they were happy to get the opportunity to put their education to use in the world of work after a semester or two, just to find out if they are really going to like the career for which they are preparing themselves.

Statistics show that a student's grades go *up* after the work experience. The student then can see more easily how the academic classwork applies to the practical experience.

Educators feel that the cooperative education is the *way of the future*. Co-op allows the student to pace himself or herself in the work-school environment and apply solutions to problems which many times have not been identified by others in the work field. I am delighted to be a part of the newest concept in dynamic education today. It is even more delightful to be a member of the first institution to produce reclamation cooperative trained graduates.

—G. Kyle

Cooperative job training program

Learning reclamation in 520 easy daily lessons

by Jenny Pulliam

Studying an introduction to coal mining doesn't mean that a person knows all there is to know about the business. In fact, it wasn't until working in eastern Kentucky that one western Kentucky student realized how different the types of strip mining and reclamation could be.

That student is Sherry Mallory of Drakesboro, who is now working in the Prestonsburg office of the division of reclamation in the Kentucky Department for Natural Resources and Environmental Protection. She's one of five students in the reclamation degree program of Madisonville Community College who are participating in a cooperative on-the-job training program with the state reclamation division.

The eighteen-year-old Muhlenberg County native said that she began the reclamation degree program because of her background and home environment. Being from the western Kentucky coal country, she's always been familiar with strip mining and deep mining. And, her brother is an assistant foreman at the same underground deep mine where her father is the mine foreman, Brown Badgett.

Since she started classes at the college in August, Mallory has not only studied general studies courses, such as algebra and English, but has also studied more specialized reclamation courses, such as grasses and legumes, geology and mapping and surveying. Mallory continued, "Another of our courses is a public speaking class that will help us in dealing with everyone from coal operators to government environmental officials to concerned citizens."

Mallory added, "Our introduction to coal mining courses is really just that—an introduction. There's so much to learning the different types of coal mining and different types of reclamation that each day brings a new lesson."

Mallory said that the courses she takes are part of a two-year work-study program in which the student alternates semesters of on-the-job training in the division of reclamation with study at Madisonville Community College. During the work phase, she is paid as a full-time employee of the division of reclamation. And, during the school phase, she studies reclamation technology as a full-time student.

Mallory has been going out with each of the Prestonsburg reclamation inspectors on their daily checks. Much of her time is spent with Ann Nuckols, who's one of the state's three women inspectors.

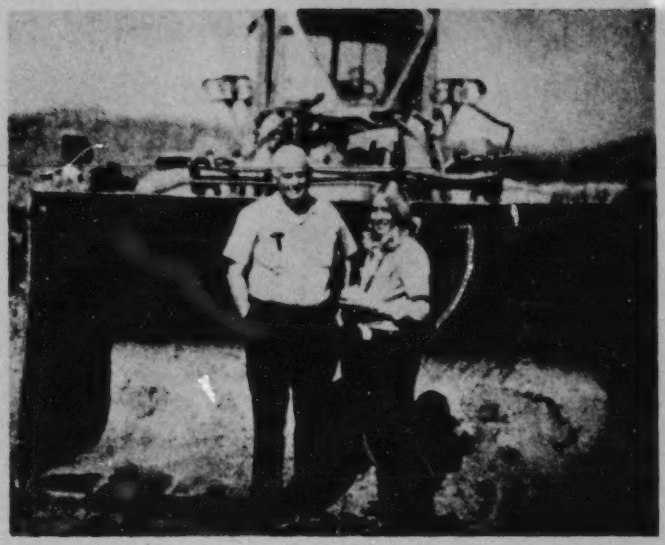
While working at the Prestonsburg field office, Mallory has been doing many of the things the inspectors do. Besides assisting them in making measurements and observations in the field to determine compliance with regulations, she also checks compliance with maps and monuments and measures outslopes and bench widths. She performs elementary-type chemical field tests for spoil and water and helps the inspectors "walk out" new permits, a system of measuring the limited area on which the company may mine.

Other possible duties for Mallory include compiling technical reports, filling out forms, and preparing maps in the office. She could also be assigned to assisting in the investigation of complaints and helping inspectors conduct tours of strip mined areas.

Mallory expects to work with the division of reclamation when she finishes her courses and receives her reclamation technology degree. A big plus with a reclamation job, she said, is the prospect of working out-of-doors. Even though she likes eastern Kentucky, she would rather work in the western Kentucky regional office that's closer to home, if she should get a job with the division after finishing school.

Sherry is the daughter of Mr. and Mrs. Willie R. Mallory of Route 1, Drakesboro, and is a graduate of Drakesboro High School.

Reprinted with permission from *The Leader News*, Greenville, Kentucky



NEVARD WELLS, area supervisor of Prestonsburg Division of Department of Reclamation, stands with Sherry Mallory, co-op student from Muhlenberg County. The picture was made at a strip mine in Eastern Kentucky.

Federal Strip Mining Bill Looms Again

The House Interior Committee has approved a strip mine regulation bill similar to two versions President Ford vetoed last year and which narrowly missed an overide vote.

The Committee voted 28 to 11 in favor of a measure sponsored by Rep. John Melcher (D-Montana), which would impose environmental regulations on surface mining and create a fund for reclaiming orphan bank land left by unconcerned coal operators.

The legislation now goes to the House Rules Committee which will decide whether to send it along for consideration by the full House.

It is along the general lines of two bills Ford rejected on grounds which reflected objections by the coal industry—that the controls would increase mining costs and thus add to consumer electric bills.

Reacting to the Committee's action, President Carl E. Bagge of the National Coal Association, as expected, called it "a radical and needless step."

The states now have reclamation law, many of them updated since the national debate over surface mining began. But in fact some states either don't have reclamation laws or have inadequate laws.

Some of the better points of federal surface mining regulation is that it insures uniform protection of the environment. It also helps balance the overhead expenses that coal operators encounter when complying with their own states' reclamation laws, as compared to states without laws.

Those coal operators now doing good reclamation work, either on their own or to comply with their state reclamation laws, should not have difficulty complying with new federal laws.

Less far-reaching strip mining controls were included by the Senate in a federal coal leasing bill passed earlier by both houses and sent to a conference committee. This bill would cover more than 782,000 acres of federal land leased to coal operators. Out of a total 533 active leases, only 59 leases are now producing coal.

The bill will focus on these points:

- Require termination of non-producing coal leases
- Bar granting new leases to those holding old leases
- Require all leases be awarded by competitive bids
- Insure consideration of environmental impact of federal coal leases

Rep. Morris K. Udall (D-Arizona), a key supporter of the measure said he believed there was "a good chance" another veto could be overridden despite "fierce opposition" by the administration. Udall also said, "We have made some good modifications that may wipe out Mr. Ford's transparent arguments against the bill."

David Cobb

86

R.T.A. Volunteers Work On Honey Bee Research Project

With a hammer in one hand, and refreshments in the other, volunteer Reclamation students worked diligently several evenings this spring constructing bee hives for a research project being conducted by Pat Angel. The title of the research project is "Honey Production on Reclaimed Strip Mine Spoil" and the objectives are to demonstrate that (1) the revegetation on strip mine spoil can be benefited by honey bee pollination, and (2) the grasses and legumes being used to stabilize these reclaimed lands represent a potential nectar source for the production of honey and bees wax. The research is being funded by an IMMR* grant. "Without the help of student volunteers the project would be impossible due to the large amount of man hours required to do the work," Angel said. And he added, "The work provides to the volunteers a chance to get together and at the same time hopefully it teaches them about a very important aspect of Reclamaton—crop pollination." The project will continue through the fall of 1977, and all Reclamation students should have an opportunity to "work with the bees."

**IMMR Institute of Mining and Mineral Research—a University of Kentucky foundation that directs funds involving research into the problems associated with mining and reclamation.*

SECOND FULL TIME RECLAMATION INSTRUCTOR SOUGHT

The search is on for a qualified person to fill the newly approved full time Reclamation instructor position at Madisonville Community College. Due to the rapid growth and development of the first Reclamation Tech Program in the nation, a second full time instructor is desparately needed. Hopes are that M.C.C. can attract a person with industrial experience to teach courses that are presently being taught by part time instructors. These courses include Geology, Grasses and Legumes, Water Drainage and Management, Mine Management, and Fundamentals of Aerial Photography.

Applicants should have a Masters Degree in a reclamation-related field and must have field experience. Contact Mr. Angel at M.C.C. for further details.

This newsletter is a project of the Reclamation Technologists of America Club at Madisonville Community College, Madisonville, Kentucky. Lee Stone, president; Hugh Van Weaver, vice president; William Colter, secretary. Printing paid for by the RTA Club.

RECLAMATION-TECHNOLOGY DEPARTMENT
Madisonville Community College
Madisonville, Kentucky 42431

RETURN REQUESTED

APPENDIX XIV

Prospective Student Interview Checklist

88

Initial Interview Checklist
Prospective Cooperative Student

Name_____ Age____ Mining Mechanic_____

Address_____ Reclamation_____

Phone_____ Mining_____

Married_____

Single_____

Children_____

Veteran_____ _____ _____
service time period mos.

When do you want to start classes_____

Prior education_____

Transfer credits from_____

High school
grad_____ GED_____

Where did you hear about this program?_____

Refered by_____

Relatives and associates in Mining or Reclamation related fields:_____

_____

_____

_____

_____

CE 009 705

ACCESSION NUMBER: VT103512

PUBLICATION DATE: 30JUN76

TITLE: EFFECTIVENESS OF VOCATIONAL TECHNICAL TRAINING IN HEALTH EDUCATION. RESEARCH AND DEVELOPMENT SERIES C/76-1.

PERSONAL AUTHOR: HAYES, KENNETH P.; BALAKRISHNAN, GEETA

DESCRIPTOR: *GRADUATE SURVEYS; *HEALTH OCCUPATIONS EDUCATION; *TECHNICAL EDUCATION; POST SECONDARY EDUCATION; *PROGRAM EVALUATION; *EMPLOYMENT POTENTIAL; *JOB SATISFACTION

IDENTIFIER: MAINE

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 34P.

ABSTRACT: THIS REPORT ANALYZES THE RESULTS OF A MAIL SURVEY OF GRADUATES OF HEALTH EDUCATION PROGRAMS IN MAINE VOCATIONAL-TECHNICAL INSTITUTES TO EVALUATE EFFECTIVENESS OF THE TRAINING AND SKILLS RECEIVED IN THEIR PROGRAMS. RETURN RATE OF THE SAMPLE OF 885 WAS 56.3 PERCENT (498). ANALYSES OF RESULTS ARE PRESENTED ACCORDING TO THE CATEGORIES OF EMPLOYMENT STATUS, INCOME EXPECTATIONS, JOB SATISFACTION, JOB PREPARATION, FURTHER TRAINING, AND TRAINING TIME. TABLES PRESENT PERCENTAGES OF GRADUATES BY INSTITUTE RESPONDING TO QUESTIONS ON LENGTH OF TIME SPENT IN LOOKING FOR A JOB; INCOME DISTRIBUTION AND EXPECTATION; JOB SATISFACTION; MOST AND LEAST HELPFUL ASPECTS OF PROGRAM; PREPARATION; AND FUTURE TRAINING PLANS. SURVEY RESULTS INCLUDE: 75 PERCENT OBTAINED JOBS WITHIN ONE MONTH OF GRADUATION; 75 PERCENT WERE SATISFIED WITH THE QUALITY OF JOB OFFERS; 93 PERCENT OBTAINED JOBS IN THEIR AREA; OVER 50 PERCENT EARNED FROM $5,000-$7,499; OVER 80 PERCENT WERE SATISFIED WITH JOBS; OVER 95 PERCENT FELT TRAINING WAS ADEQUATE FOR PRESENT JOBS; AND 67 PERCENT PLANNED ADDITIONAL TRAINING IN THEIR FIELD. A SAMPLE SURVEY INSTRUMENT IS INCLUDED. (NJ)

INSTITUTION NAME: MAINE UNIV., ORONO. SOCIAL SCIENCE RESEARCH INST.

SPONSORING AGENCY NAME: MAINE STATE DEPT. OF EDUCATIONAL AND CULTURAL SERVICES, AUGUSTA. VOCATIONAL EDUCATION RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 512

SSRI

SOCIAL SCIENCE RESEARCH INSTITUTE

UNIVERSITY OF MAINE *at Orono*

2

RESEARCH AND DEVELOPMENT SERIES

C/76 - 1

EFFECTIVENESS OF VOCATIONAL TECHNICAL TRAINING IN HEALTH EDUCATION

By

Dr. Kenneth P. Hayes
(Acting Director)

Ms. Geeta Balakrishnan
(Research Assistant)

34P.

Prepared For:

THE RESEARCH COORDINATING UNIT
BUREAU OF VOCATIONAL EDUCATION

The research reported herein was performed pursuant to a grant from the State Department of Education and Cultural Services. Contractors undertaking such projects under government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Department of Education position or policy.

June 30, 1976

CE 009 704

34P

TABLE OF CONTENTS

		Page
1	INTRODUCTION AND METHODOLOGY	2
2	RESPONDENT PROFILE	4
3	STUDENT EVALUATION OF EFFECTIVENESS OF TRAINING	8
4	SUMMARY AND CONCLUSIONS	26
	APPENDIX	A-1

CHAPTER 1

INTRODUCTION AND METHODOLOGY

This report presents an analysis of the results of a mail survey conducted by the Social Science Research Institute of the University of Maine. The sample consisted of 885 Vocational Technical Institute graduates of Health Education during 1971-75. The purpose of the survey was to evaluate the effectiveness of the training and skills received by these students at their respective institutes. The term 'effectiveness' has two meanings here; first, it means the extent to which this training helped people acquire jobs and second, it means the degree to which their training helped these individuals in the successful performance of their jobs.

Survey questions also dealt with the respondents' past training, plans for future training, their work related experiences as well as demographic information.

The State of Maine has six Vocational Technical Institutes and four of these six were included in this survey. The Washington County Vocational Technical Institute was excluded because it does not offer any courses in Health Education and the Kennebec Valley Vocational Technical Institute was not included as it does not have an LPN Program. The other four institutes which were surveyed all have programs of study leading towards a diploma in practical nursing. Also in this survey were graduates of the Maine School of Practical Nursing and the students of Medical Laboratory Technology and Radiologic Technology offered at the Eastern Maine Vocational Technical Institute at Bangor.

Early this year, lists of names and current addresses of graduates were obtained from all these institutes. Thereafter, each of these graduates was sent a typed personal introductory letter explaining the purpose of the survey, a copy of the survey and a postage paid return envelope. After an

interval of two weeks, a follow up letter with another copy of the survey and a return envelope was again sent to non-respondents.

Out of a sample of 885, 498 completed surveys were received which meant a response rate of 56.3%. Subtracting surveys which were returned as undeliverable (address wrong, unknown, etc.), the response rate goes up to 64.7%.

The completed surveys were coded on machine readable mark sense sheets by S.S.R.I.'s staff coders. In order to assure accuracy as well as uniformity in the interpretation of responses, 5 to 10% of each coders' surveys were checked. Finally, these data were transferred from coding sheets to computer cards.

CHAPTER 2

RESPONDENT PROFILE

Respondents to this survey were mainly people who grew up in Maine, who were below 25 years of age, were married, female and had annual incomes of between $5,000 and $7,499.

A comparison of the respondents' educational and demographic characteristics according to the institute they graduated from, yielded results presented in the following tables.

Table 2-I provides the distribution of respondents in each field by the institute from which they graduated. It is clear from this data that the majority of students (90.1%) surveyed were graduates of Practical Nursing Programs (LPN).

Sex: Ninety-four percent of the respondents were female. The only group of respondents for whom this distribution was significantly different were the Medical Laboratory students of EMVTI where the percentage of female respondents was 64%.

Age: The median age of the respondents was 24. Over eighty percent of all respondents were below 40 years of age with 53% being below 25 years of age. The percentage of respondents below 25 was much higher for Medical Laboratory students (92%) and for Radiologic Technology students (94%).

Marital Status: Taken as a whole, 63% of all respondents were married, 28% had never been married, 3% were widowed and 7% were divorced. A similar pattern is present among all students, except for the Medical Laboratory Technology students and Radiology students who have a lower percentage (less than 50%) of married respondents.

TABLE 2-1

NUMBER OF RESPONDENTS IN EACH FIELD BY INSTITUTE

FIELD OF TRAINING:	CM VTI[1]	%	EM VTI[2]	%	ME SCHOOL OF PRACTICAL NURSING[3]	%	NM VTI[4]	%	SM VTI[5]	%	EMVTI EMMC[6]	%	EMVTI MMMC[7]	%
PRACTICAL NURSING (LPN)	113	22.8	56	11.3	91	18.4	94	19.0	92	18.6	--		--	
MEDICAL LABORATORY TECHNOLOGY	--		--		--		--		--		--		35	7.1
RADIOLOGIC TECHNOLOGY	--		--		--		--		--		14	2.8	--	
TOTALS	113	22.8%	56	11.3%	91	18.4%	94	19.0%	92	18.6%	14	2.8%	35	7.1%

[1]CMVTI: Central Maine Vocational Technical Institute, Auburn, Maine

[2]EMVTI: Eastern Maine Vocational Technical Institute, Bangor, Maine

[3]MAINE: School of Practical Nursing, Waterville, Maine

[4]NMVTI: Northern Maine Vocational Technical Institute, Presque Isle, Maine

[5]SMVTI: Southern Maine Vocational Technical Institute, Portland, Maine

[6]EMVTI/EMMC: Radiologic Technology Students (2 yr program) of EMVTI who do their practical training at Eastern Maine Medical Center

[7]EMVTI/MMMC: Medical Laboratory Technology, Students (2 yr program) of EMVTI who do their second year of study at Mid Maine Medical Center

Preferences in Location: A majority of respondents (60%-70%) prefer living in small towns or suburban areas. Differences among institutes in this instance were not significant. 90% of all these graduates grew up in Maine and over 90% live in Maine now.

Income: Table 2-2 presents the 1975 income distribution of respondents. The median income was equal to $6,250. A detailed analysis of student income by each institute is given in the next section.

TABLE 2-2

INCOME OF RESPONDENTS IN 1975

INCOME GROUPS	NO OF RESPONDENTS	PERCENTAGE
LESS THAN $5,000	136	27.3
$5,000-$7,499	233	46.8
$7,500-$9,999	73	14.7
$10,000-$14,999	7	1.4
$12,500-$14,999	2	0.4
Not Ascertained	14	2.8
Inappropriate	33	6.6
TOTAL	498	100.0%

CHAPTER 3

STUDENT EVALUATION OF EFFECTIVENESS OF TRAINING

The data collected from Health Education graduates were analyzed to find out the students evaluation of the effectiveness of their training in terms of finding jobs as well as performing these jobs satisfactorily. Chart-1 identifies the main categories into which the survey questions have been grouped for analysis of this study. The texts of the questions referred to in the chart are given in the appendix. All the questions referred to in Chart-1 deal with issues related to the respondents' search for jobs, number and nature of job offers and finally with factors affecting the job selection process. The more important findings from the analysis are summarized in tabular form in this chapter.

Ease of Finding Jobs: Over fifty percent of the respondents taken as a whole already had a job at the time of their graduation while an additional 25% of them had to look only for a month or less to find employment. Less than .1% of the graduates had to look for more than a year for employment. Table 3-1 provides this information by each institute. It is clear from table 3-1 that a very high proportion of graduates from all these institutes seem to have found jobs either by graduation or very soon after. This, combined with the very low percentage of people who had to continue looking for jobs for more than a year after graduation indicates that the demand for trained personnel in this area of Health Education in Maine is quite high.

Three-fourths of the respondents were satisfied with the quality of job offers they received. However, when a comparison was made among respondents by institutes, 57% of Radiology and 30% of Medical Lab graduates

CHART 1

VTI HEALTH EDUCATION STUDY

MAIN COMPONENTS

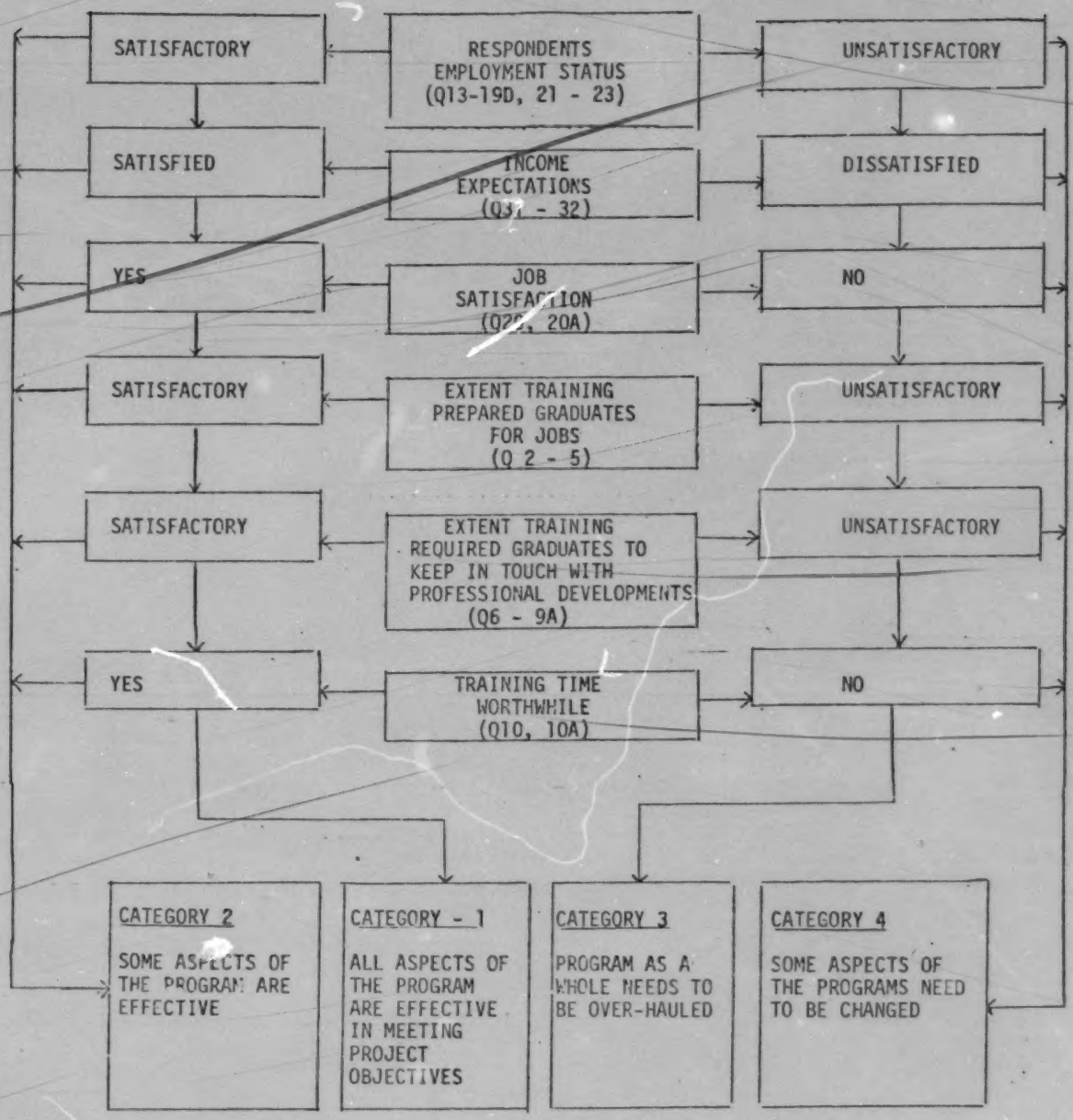


TABLE 3-1

LENGTH OF TIME RESPONDENT LOOKED FOR JOBS BY INSTITUTE

(Percentages)

Time spent finding job	CMVTI	EMVTI	Prac. Nursing	NMVTI	SMVTI	EMVTI Radiology	EMVTI Med. Lab
Had job by time graduated	62.9	44.8	71.4	54.9	57.1	53.3	63.6
Obtained job within 1 month or less	30.9	44.8	22.1	30.5	24.7	20.0	18.2
1 month to less than 6 months	6.2	10.4	5.2	13.4	13.0	20.0	13.6
6 months to less than 12 months	--	--	--	--	3.9	6.7	4.5
Over 1 year	--	--	1.3	1.2	1.3	--	--
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No. of Respondents	97	58	77	82	77	15	22

stated that they were disappointed with the quality of job offers they received.

93% of the respondents entered in their first job in the field in which they were trained.

A comparison of respondents by institute did not alter this distribution in any significant manner. Finally, over 90% of respondents indicated that they plan to continue working in the same field.

Income Expectations: Table 3-2 presents the income distribution of respondents by institutes. While a majority of graduates of all institutes had incomes between $5,000-$7,499 in 1975, a disproportionately high percent of NMVTI (41%) and EMVTI/Radiology students (40%) earned incomes below $5,000 in 1975. At the same time, it is interesting that 7% of Radiology students earned incomes ranging between 12,500-$14,999. Since the number of respondents in this case is very small (15) no conclusion can be made about the probable reasons behind this.

The respondents were asked whether their incomes coincided with their expectations. Table 3-3 presents the responses which were obtained.

A much higher proportion of Radiology students (50%) considered their incomes to be less than their expectations compared to the other respondents, more than 60% of whom considered their incomes to be either equal to or more than their expectations.

Job Satisfaction: 38% of the respondents taken as one group were 'very satisfied' with their present jobs, while 44% were 'satisfied' and 12% were 'not satisfied.' A comparison by institutes resulted in the following distribution presented in Table 3-4.

TABLE 3-2

(Percentages)

INCOME	INCOME DISTRIBUTION OF RESPONDENTS BY INSTITUTE IN 1975						
	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
Lt. $5,000	24.0	25.5	30.9	40.7	33.3	40.0	8.3
$5,000-$7,499	52.9	68.6	49.4	41.9	57.8	26.7	45.8
$7,500-$9,999	20.2	5.9	17.3	16.3	8.9	26.7	37.5
$10,000-$12,499	2.9	--	1.2	1.2	--	--	8.4
$12,500-$14,999	--	--	1.2	--	--	6.6	--
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of respondents	104	51	81	86	90	15	24

15

TABLE 3-3

(Percentages)

RESPONDENT'S INCOME EXPECTATIONS, 1975							
INCOME EXPECTATIONS	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
More than expected	7.7	--	9.8	5.8	2.3	7.1	12.5
Equal to expectations	71.2	70.6	57.3	69.8	67.4	42.9	62.5
Less than expectation	21.2	29.4	32.9	24.4	30.3	50.0	25.0
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of respondents	104	51	82	86	89	14	24

16

TABLE 3-4

SATISFACTION WITH PRESENT JOB

(Percentages)

JOB SATISF	CM VTI	EM VTI	PRAC NURS	NM VTI	SM VTI	EMVTI RADIOLOGY	EMVTI MED LAB
VERY SATISF	34.3	37.5	51.9	32.2	36.8	60.0	47.8
SATISFIED	52.0	44.6	39.5	50.6	54.0	40.0	47.8
NOT SATISF	13.7	17.9	8.6	17.2	9.2	--	4.4
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO OF RESPOND	102	56	81	87	87	15	23

From Table 3-4 it is clear that as far as job satisfaction is concerned, the responses of graduates by institutes are not significantly different from the general response.

Job Preparation Aspect of Program: Under this category would come all variables which measure the degree to which their training skills helped the graduates to perform their jobs in a satisfactory fashion. Twenty-three percent of all respondents felt that all aspects of training were useful to them in their professions. Table 3-5 presents the different aspects of the training programs considered helpful by the graduates.

Data provided in Table 3-5 shows that while 44% of Maine School of Practical Nursing students consider all aspects of their training to be useful, only 13% of the Medical Lab students found all aspects of their training to be useful. Thirty-eight percent of Medical Lab students, however, stated that on-the-job-training they received was the most useful aspect of their training program. In general, the three most frequent responses seem to be 'all aspects are good,' 'on-the-job-training' and 'clinical experience,' in that order. When all the respondents are considered as one group, the other 'helpful aspects' most mentioned were 'training in anatomy and physiology (6%) and 'actual treatment of patients' (4%). The aspects of training least mentioned as being useful for all respondents taken together were, 'food and nutrition courses' (1%) 'internship' (1%) 'working with people' (1%) and 'other courses' (1%).

Least Helpful Aspects of Training: When asked about the least helpful aspects of their programs, 30% of all respondents replied that no aspects were bad, while 12% stated that 'unnecessary courses' were

TABLE 3-5

STUDENT EVALUATION OF MOST HELPFUL ASPECTS OF PROGRAM
(Percentages)

	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
All aspects good	25.0	16.9	43.7	16.7	25.9	14.3	12.5
On the job training	30.6	15.3	8.0	21.4	18.8	28.6	37.5
Clinical [1]	13.0	13.6	11.5	16.7	15.3	28.5	8.3
Classroom	2.8	3.4	2.3	1.2	2.4	--	--
Good instructors	4.6	3.4	4.6	2.4	2.4	--	--
Working with people [2]	2.8	3.4	4.5	2.4	5.9	--	--
Actual treatment of patients	2.8	6.8	5.7	9.5	1.2	--	--
Anatomy & physiology	5.6	3.4	6.9	9.5	4.7	21.4	--
Core science courses [3]	--	5.1	--	--	2.4	--	20.8
Lab experience	.9	6.8	1.1	6.0	1.2	--	12.5
Medication courses	1.9	5.1	4.6	7.1	5.9	--	--
Internship	--	--	--	--	--	7.2	8.4
Nutrition & food	--	3.4	1.1	2.4	--	--	--
Other aspects [4]	10.0	13.4	6.0	4.7	13.9	--	--
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total # of respondents	108	59	87	84	85	14	24

[1] Clinical - includes clinical and related aspects.

[2] Working with people - includes courses dealing with patient relations and experience in dealing with people's needs.

[3] CORE science courses - includes histology, microbiology chemistry and biochemistry.

[4] Other aspects - include experience in a specified area other courses, other reasons not specifically class-room or clinical

TABLE 3-6

RESPONDENT EVALUATION OF LEAST HELPFUL ASPECT OF PROGRAM

(PERCENTAGES)

	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
No aspects bad	59.8	10.7	50.0	42.3	31.8	25.0	9.5
Unnecessary courses	1.1	46.4	4.1	11.3	1.5	75.0	61.9
Other specific courses[1]	9.2	5.4	27.0	11.3	16.7	--	4.8
Science courses	--	7.1	1.4	--	1.5	--	--
Nutrition courses	6.9	3.6	4.1	9.9	15.2	--	--
Not enough clinical exper.	--	3.6	2.7	--	7.6	--	--
Specific clinical exper.[2]	6.8	12.5	8.0	7.0	13.6	--	4.8
Too general courses	1.1	--	--	1.4	--	--	--
Too much theory	--	--	1.4	1.4	4.5	--	--
Not enough classroom exper.	2.3	--	--	4.2	--	--	--
Unqualified teachers	--	3.6	--	1.4	3.0	--	--
Dislike school atmosphere	1.1	--	--	--	--	--	--
Unnecessary work	1.1	1.8	1.3	4.2	1.5	--	--
Other reasons[3]	10.3	5.4	--	5.6	3.0	--	19.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of respondents	87	56	74	71	66	12	21

[1]Other specific courses includes nursing courses

[2]Specific clinical experience includes other clinical reasons also

[3]Other reasons include classroom reasons and other 'not classroom, not clinical reasons'

the least useful aspect. Specific clinical experience (6%) and nutrition courses (6%) were the other courses considered least helpful. Table 3-6 presents this data by institute. A lower proportion of EMVTI graduates, LPN (11%) Radiology (25%) and Medical Lab Technology (10%) replied that 'no aspects of their program were bad,' compared to 60% of CMVTI graduates and 50% of Maine School of Practical Nursing students. A high proportion of EMVTI students considered 'unnecessary courses' as the least helpful aspect. 'Nutrition' and 'specific clinical experience' were also cited as being less helpful. Very few of these respondents disliked their school atmosphere or consider that they did unnecessary work during their training.

Another method of evaluating the usefulness of program acquired skills is by finding out the extent to which these skills prepared the respondents for their jobs. When asked this question, the graduates responded in the manner presented in Table 3-7.

Data presented in Table 3-7 clearly indicated that over 95% of the respondents feel that their training prepared them either 'adequately' or'more than adequately' for their jobs. This response can indeed be considered as a most positive evaluation of all the programs which are surveyed here. A second question about how well this training prepared them for their current jobs also elicited the same kind of positive evaluation.

It is critical for practitioners in areas like health education to be up-to-date and keep abreast of professional developments. Therefore, individuals who undergo further training or plan to take more training can be considered as people who aspire to improve their professional skills. 27.9% of all graduates claimed that they have taken further

TABLE 3-7

PREPARATION FOR FIRST JOB

(Percentages)

DEGREE OF PREPARATION	CMVTI	EMVTI	PRAC NURS	NM VTI	SM VTI	EMVTI RADIOLOGY	EMVTI MED LAB
More than adequate	23.7	23.4	40.7	26.6	24.4	80.0	32.0
Adequate	72.8	73.4	57.1	70.2	75.6	20.0	68.0
Inadequate	3.5	3.2	2.2	3.2	--	--	--
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of respondents	114	64	91	94	90	15	25

training. A majority of these respondents are recent graduates and perhaps have not had enough time to take further training which could explain this low proportion. Of students who took further training, over 90% did so at institutes different than those from which they graduated.

Over 67% of respondents stated that they plan to take more training and 52% of these cited 'desire for personal advancement' as their reason for further training. In the analysis by institute, it was found that, the graduates of Maine School of Practical Nursing and Medical Lab students are most likely to respond that they plan to take more training. These data are presented in Table 3-8.

Increasingly, on-the-job training is becoming a more important part of manpower training in many fields. A majority of respondents stated that they did receive in-service training as can be seen from the data given in Table 3-9.

Student Evaluation of Training Time: One of the questions on the survey (Q.10, 10A) dealt with whether these graduates would enter the same program again if they were given another chance. An affirmative answer in this instance indicates that the individual considers the time spent in acquiring this training to be worthwhile, and is, therefore, a positive evaluation of the program. Over 61% of all respondents stated that they would enter the same program again while 37% indicated that they would not do so. Results of the analysis of this variable by unit is given in Table 3-10.

TABLE 3-8

PLAN TO TAKE MORE TRAINING BY UNIT (Percentages)

PLANS FOR FUTURE TRAINING	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
Yes	74.8	74.2	79.5	60.7	62.1	78.6	83.3
No	25.2	25.8	20.5	39.3	37.9	21.4	16.7
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of respondents	107	62	88	89	87	14	24

TABLE 3-9

RECEIVED IN SERVICE TRAINING BY INSTITUTE (Percentages)

TRAINING	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI LAB TEC
Yes	88.7	76.2	86.7	86.5	83.3	80.0	62.5
No	11.3	23.8	13.3	13.5	16.7	20.0	37.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of respondents	115	63	90	89	90	15	24

24

TABLE 3-10

ENTER SAME PROGRAM BY INSTITUTION

(Percentages)

ENTER SAME PROGRAM	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
Yes	64.6	53.1	61.5	62.0	66.7	73.3	68.0
No	35.4	46.9	37.4	38.0	33.3	26.7	32.0
Maybe	--	--	1.1	--	--	--	--
	100.0	100.0	100.0	100.0	100.0	100.0	100.09
Number of respondents	113	64	91	92	90	15	25

Data presented in Table 3-10 indicate that a lower proportion (54%) of EMVTI's LPN students are likely to enter the same program again compared to over 60% in the case of the graduates of other institutes.

The reasons for entering or not entering the same program again do not vary significanlty by institute. EMVTI's radiology and medical lab technology students are more likely to say (38.5% for radiology, 37.5% for medical lab) they like the profession while 26.7% of Maine School of Practical Nursing students gave well trained instructors as their reason for re-entering the program. Over 25% of LPN graduates felt that they could advance faster in another program in the general area of health education. Apparently all respondents feel that the wage scales and job opportunities in their areas were satisfactory because a very low proportion of the graduates cited these two reasons for not entering the same program again. This data is presented in Table 3-11.

Chart 1 on p. 9 identified the main categories into which the survey questions have been grouped in order to facilitate the data analysis. The preceding sections presented some of the results of this analysis.

A computer program was used to group respondents into categories which graded the degree of approval of their program of study. Category 1 included those who answered all questions mentioned in Chart 1 in the affirmative. Category 2 included those who answered some of these questions positively. People who answered some of these questions negatively were included in category 3 and finally category 4 contains all those who answered the questions negatively. The results of this program are presented in Table 3-12.

TABLE 3-11A

REASONS FOR ENTERING SAME PROGRAM (Percentages)

REASONS	CMVTI	EMVTI	PRAC NURS	NMVTI	SMVTI	EMVTI RADIOLOGY	EMVTI MED LAB
LIKE PROFESSION	33.0	22.2	25.6	34.5	31.3	38.5	37.5
WELL TRAINED [1]	19.8	20.6	26.7	16.1	19.3	23.1	12.5
JOB OPPORTUNITIES	2.8	3.2	3.3	5.7	6.0	7.7	16.7
TYPE OF PROGRAM BETTER	1.9	--	--	3.4	1.2	--	4.2
SAME PROGRAM, OTHER REASONS	3.8	3.2	6.6	1.1	7.3	--	--
SUBTOTAL	61.3	49.2	62.2	60.8	65.1	69.3	70.9

TABLE 3-11B

REASONS FOR NOT ENTERING SAME PROGRAM (Percentages)

REASONS							
ADVANCE FASTER [2]	29.2	34.9	27.8	25.3	27.7	15.4	12.5
TRAINING NOT GOOD	1.9	7.9	--	3.4	1.2	--	8.3
DISLIKE FIELD	--	--	2.2	4.6	1.2	15.3	8.3
OBTAIN HIGHER WAGES [3]	--	3.2	--	2.3	1.2	--	--
NO JOB OPPORTUNITIES	1.0	--	2.2	2.3	--	--	--
OTHER REASONS	6.6	4.8	5.6	1.3	3.6	--	--
SUBTOTAL	38.7	50.8	37.8	39.2	34.9	30.7	29.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NO. OF RESPONDENTS	106	63	90	87	83	13	24

[1] Well trained instructors

[2] Advance faster in another program in same field

[3] Obtain higher wage elsewhere

TABLE 3-12

RESPONDENTS BY DEGREE OF APPROVAL OF PROGRAM

	NO. OF RESPONDENTS	PERCENT
CATEGORY 1	99	19.9
CATEGORY 2	497	99.8
CATEGORY 3	353	70.9
CATEGORY 4	0	--

SUMMARY AND CONCLUSIONS

The analysis of data collected from health education graduates is presented in Chapter Three. The results clearly indicate that these programs are effective in fulfilling the objectives set forth in the Introductory Chapter. The most important points of this analysis are summarized below:

1. The typical graduate of these programs is a married female, below 25 years of age, who grew up in Maine and had an annual income between $5,499 and $7,500 in 1975.

2. 75% of the graduates who were surveyed either had a job at graduation or obtained one within one month of graduation.

3. 75% of the respondents were satisfied with the quality of job offers they received. This percentage was lower in the case of radiology (43%) and medical laboratory technology (70%) students of EMVTI.

4. 93% of the respondents obtained positions in their area of training for their first jobs. More than 90% stated that they plan to continue working in their field.

5. A majority of students of all institutes (over 50%) earned incomes between $5,000 and $7,499 or over during 1975. However, 40.7% NMVTI graduates and 40.0% of EMVTI radiology students received incomes below $5,000 during the same year. On the average, respondents considered their incomes to be either equal to or above expectations. 50% of EMVTI radiology students responded that their incomes were below expectations.

6. Over 80% of the respondents were either 'very satisfied' or 'satisfied' with their jobs.

7. Over 23% of all respondents claimed that 'all aspects of their training' were useful to them in their profession. 'On-the-job-training' and 'clinical experience' were the other two aspects which were most frequently mentioned as being useful. 'Food and nutrition' courses and 'internship' were among those least mentioned as being useful.

8. 30% of respondents stated that no aspect of their training were bad. 'Unnecessary courses' and 'nutrition courses' were most mentioned as being 'least helpful'.

9. Over 95% of the students felt that their programs prepared them for their professions either 'adequately' or 'more than adequately'. 67% of these students plan to take more training in their field.

10. Over 60% of the graduates of all programs, except EMVTI, stated that they would enter the same program again if given a second chance. 47% of EMVTI graduates (LPN Program) responded they would not do so. 'Liking the profession' and 'well trained instructors' were the resons most often given for entering a program again. 35% of EMVTI LPN gradutes felt that they could 'advance faster' in another program in the area of health education.

This study was conducted to evaluate the 'effectiveness' of a specific program offered by vocational technical institutes in Maine. Although goals of vocational education vary from program to program, its major function is to provide students with occupational skills that qualify them for jobs. Most manpower forecasts call for workers with specific skills, as opposed to workers with a general education in liberal arts. The 'Maine State Plan for Vocational Education', (1976 and 1977) published by the department of educational and cultural services indicates that the demand for LPN graduates

is increasing in this State.

According to the 1970 census, the median income for women with 1-3 years of college was $2,367 in 1969 and $4,511 for those with 4 years of college. The median income of $6,250 for the respondents of this survey compares favorably with the census figures, even after allowing for the effects of inflation during 1969-1975.

Even though all this evidence suggests that the programs surveyed here are indeed effective, a comparison with criteria for successful performance used by another program might prove interesting. Prof. Albert J. Paulter*of the State University of New York at Buffalo, who worked on a vocational project to develop objectives for the program and a system of evaluation to measure how these objectives were met, used the following criteria.

1. Upon completion of such a program, 65% of the respondents will rate the experience as being satisfying to them.

2. 60% of respondents will indicate that they would re-enter the same program if they were to start all over again.

3. 60% will state that they plan to continue working in the same area of their specialization.

4. 60% will find employment within 6 months of graduation.

When the above criteria is used to evaluate the programs surveyed for the present study, it is obvious that these programs would satisfy all these measures of evaluation.

---

* A. J. Paulter. "Looking Ahead at Tomorrow's Vo-ed" School Shop 35:43-6 October, 75.

UNIVERSITY OF MAINE *at Orono*

SOCIAL SCIENCE RESEARCH INSTITUTE
164 College Avenue
Orono, Maine 04473
207/581-2555

HEALTH EDUCATION SURVEY

Our records indicate that you are a graduate of the _____

program at the _____.

We would like some information about that education.

1. How many years were you enrolled in this program? [1] [2] [3] [4]

2. Which aspects of your health related education did you find most helpful?

_____

_____

3. Which aspects did you find least helpful? _____

_____

4. How well did your health related education prepare you for your first job?

   More than adequately [1] Adequately [3] Inadequately [5]

5. (If not still working at first job) How well did it prepare you for your current job?

   More than adequately [1] Adequately [3] Inadequately [5]

6. Since completing this program have you taken any further training in this field?

   Yes [1] No [5]

   6a. (IF YES) Where was this training taken? _____

   _____

7. Do you plan to take more training in this field? Yes [1] No [5] (Go to question 8)

   7a. Why do you plan to take more training? Please check all responses that apply to you.

   [ ] To advance in my field
   [ ] Because of licensing requirements
   [ ] I personally desire more training
   [ ] Other (please specify) _____

8. Since completing this program have you taken any training in another field of study? Yes [1] No [5] (Go to question 9)

8a. (IF YES) What kind of training was this? _____

_____

8b. Where was this training taken? _____

8c. How long was this training?

1 year or less [1] 2 years [2] 3 years [3] 4 years or more [4]

9. Have you received any in-service training in your field? Yes [1] No [5] (Go to question 10)

9a. How helpful have you found in-service training?

Very helpful [1] Somewhat helpful [3] Not too helpful [5]

10. If you were a graduating high school senior now, would you enter the same educational program? Yes [1] No [5]

10a. Why do you feel this way? _____

_____

11. Did you receive any post high school training before entering your health education program? Yes [1] No [5] (Go to question 12)

11a. What was the result of this training?

2 year degree [1] 4 year degree [3] Other (specify) _____ [5]

12. While you were enrolled in your health educational program did you plan to stay in Maine after graduating? Yes [1] No [5]

12a. Why did you plan to stay in or leave Maine? _____

_____

We're also interested in your search for job opportunities.

13. How long did you look for a job in your field of training after graduation?

_____

14. Did you have a job offer in your field of training in Maine?

Yes [1] No [5]

14a. How many offers did you receive in Maine?

_____

14b. Did you seek job offers in Maine?

Yes [1] No [5]

15. Were you disappointed in the number of job offers in your field in Maine?

Yes [1] No [5]

16. Were you disappointed in the quality of the job offers in your field in Maine? Yes [1] No [5]

17. Are you currently licensed to practice in your field in Maine?

Yes [1] No [5] License not required [7]

18. Did you enter your field of training in your first job? Yes [1] (Go to Q. 19) No [5]

18a. (IF NO) What did you do on your first job? _____

_____

19. Are you presently working in your field of training?

Yes [1]

19a. Do you plan to continue working in your field of training?

Yes [1] No [5]

19b. (IF NO) Why not? _____

_____

_____

No [5]

19c. What is your present occupation?

_____

19d. Would you like to be working in your field of training?

Yes [1] No [5]

20. How satisfied are you with your present job?

Very satisfied [1] Satisfied [3] Not satisfied [5]

20a. Why do you feel this way? _____

_____

21. What kinds of jobs outside your field of training have you held since graduation? _____

_____

22. If you have never held a job in your field of training, what factors affected this decision?

- [ ] Family needs
- [ ] Work of spouse
- [ ] Wages too low
- [ ] No jobs available
- [ ] Decided not to work
- [ ] Don't like field of training
- [ ] Other (please specify) _____

_____

23. Many factors go into a decision to select a job and job location. Please rate the factors below as to the importance they had in your selecting a job after graduation.

	1. Very Important	3. Important	5. Not Important
a. Wages	☐	☐	☐
b. Preference of spouse	☐	☐	☐
c. Job opportunities in your field	☐	☐	☐
d. Job opportunities outside your field of training	☐	☐	☐
e. Living in Maine, leaving Maine	☐	☐	☐
f. Further educational opportunities	☐	☐	☐
g. Presence of a hospital in community	☐	☐	☐
h. Size of community	☐	☐	☐

24. In what type of community would you like to locate?

Rural [1] Small town [2] Suburban [3] Urban [4]

Finally, we need to know a few things about you as a person.

25. When were you born? _____ Month | Year

26. What is your sex? Male [1] Female [5]

27. What is your current marital status?

Married [1] Never Married [2] Widowed [3] Divorced/Separated [4]

28. What was your marital status when you graduated from your health education program?

Married [1] Never Married [2] Widowed [3] Divorced/Separated [4]

29. Where did you grow up? _____ City or Town | State

30. Where do you presently live? _____ City or Town | State

31. What is your approximate personal income from wages, salaries, stipends, and/or self-employment for the past year before taxes?

[1] Less than $5,000
[2] $5,000-$7,499
[3] $7,500-$9,999
[4] $10,000-$12,499
[5] $12,500-$14,999
[6] $15,000-$19,999
[7] $20,000 or more

32. How does this income compare with your expectations for your field of training?

More than expected [1] About as expected [3] Less than expected [5]

THANK YOU. PLEASE PLACE IN POSTAGE-PAID ENVELOPE AND MAIL AS SOON AS POSSIBLE.

ACCESSION NUMBER: VT103532

PUBLICATION DATE: JUN76

TITLE: CREATING A CAREER: A PRE-VO-TECH PROGRAM. FINAL REPORT.

PERSONAL AUTHOR: DZUBAK, CATHY LEE; AND OTHERS

DESCRIPTOR: *CAREER EDUCATION; *SECONDARY EDUCATION; GRADE 9; GRADE 10; PROGRAM DESCRIPTIONS; PROGRAM EVALUATION

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 19P.

ABSTRACT: AS PART OF CAREER EDUCATION IN THE HOPEWELL AREA SCHOOL DISTRICT OF PENNSYLVANIA, A PREVOCATIONAL-TECHNICAL PROGRAM FOR GRADES NINE AND TEN WAS ESTABLISHED THAT WAS DESIGNED TO ENABLE STUDENTS TO DEVELOP SELF-AWARENESS AND KNOWLEDGE OF A WIDE VARIETY OF OCCUPATIONS. VARIOUS STAGES LEADING TOWARD ENTRANCE INTO THE JOB MARKET WERE PLACED ON A CONTINUUM AND DIVIDED INTO UNITS OF INSTRUCTION. EACH UNIT WAS SUBDIVIDED INTO SPECIFIC ACTIVITIES TAILORED TO MEET THE SPECIFIC OBJECTIVE. THE REPORT DESCRIBES THE PROJECT COMPONENTS OF ORGANIZATION, SPEAKERS, FIELD TRIPS, TEACHING, PRETEST AND POSTTEST, AND EXPERIMENTAL EVALUATION. RESULTS OF THE KNOWLEDGE OF OCCUPATIONS PRETEST AND POSTTEST ARE PRESENTED ALONG WITH RESULTS OF AN EVALUATION TO DETERMINE SOURCES OF OCCUPATIONAL AND EDUCATIONAL INFORMATION USED BY THE STUDENTS. RESULTS INDICATED THAT PARTICIPATING STUDENTS SOUGHT HELP FROM MORE RELIABLE SOURCES AND USED AVAILABLE SOURCES OF INFORMATION MORE OFTEN AND WITH MORE POSITIVE RESULTS THAN THE CONTROL GROUP. OTHER PROJECT RESULTS INCLUDE: BEHAVIORAL OBJECTIVES AND TEACHING GOALS WERE MET AND ACTIVITIES WERE SUCCESSFULLY USED; PRETEST AND POSTTEST RESULTS INDICATED SIGNIFICANT SUCCESS IN STUDENT LEARNING LEVELS; AND STUDENTS EVALUATED THE PROGRAM POSITIVELY. SAMPLE LEARNING ACTIVITIES, THE CAREER EXPLORATION OUTLINE, AND SUGGESTIONS FOR CAREER CONSULTANTS ARE APPENDED. (NJ)

INSTITUTION NAME: HOPEWELL HIGH SCHOOL, ALIQUIPPA, PA.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 532

FINAL REPORT

CREATING A CAREER

A PRE-VO-TECH PROGRAM

PROJECT #19-5811

Cathy Lee Dzubak
Counseling Supervisor

Carol L. Ford
Vocational Counselor

Lawrence C. Korchnak
Program Director

Hopewell High School
1215 Longvue Ave.
Aliquippa, Pa. 15001
(412) 375-6685

June, 1976

VT 103 532

TABLE OF CONTENTS

1. Description of HAVE 1

2. Expectations 1

3. Evaluation and Recommendations 2

   a. Behavioral Objectives and Activities 2

   b. Planning 3

      1. Organization 3-4

      2. Speakers 4

      3. Field Trips 5

   c. Teaching the Program 5

   d. Pre-Test/Post-Test 6

   e. Experimental vs. Control Group: Questionnaire 6-8

   f. Past vs. Present Applications to Vo-Tech Programs 9

   g. Students Response 9

4. Summary 10

DESCRIPTION

As part of career education in the Hopewell Area School District, a pre-vocational technical program aimed at the 9th and 10th grade levels was established. This program (under the name of Hopewell Area Vocational Education - HAVE) is designed to enable students to develop self-awareness and knowledge of the world of work so that specific occupational decisions can be made without relying on misconceptions and erroneous assumptions. Various stages leading toward entrance into the job market are placed on a continuum divided into units of instruction. (See Diagram #1.) Each unit is expressed in terms of behavioral objectives. Each behavioral objective is again subdivided into specific activities which are tailored to meet the stated objective. (See Appendix A.)

In carrying out the task of instruction the following areas were tapped for use in the program:

1. Career Resource Center
2. Labor organizations
3. Local businesses
4. Local industry
5. Civic groups & volunteer organizations
6. Governmental agencies

The success or failure of HAVE consists of how well it can be co-ordinated with the above and operate within the existing educational structure in the Hopewell Area School District.

EXPECTATIONS

The expectations can be summarized into 4 general statements. First, an attempt was made to help students develop an awareness of themselves in relation to others. Second, the students were expected to develop knowledge of a wide range of occupations. Third, the program was designed to aid each student in exploring and assessing the Vo-Tech programs available to them. Fourth, the student was to examine his/her suitability to Vo-Tech training and narrow their choice.

BEST COPY AVAILABLE

DIAGRAM 1

BEST COPY AVAILABLE

CREATING A CAREER

... BASIC COURSE CONTINUUM

REFINING JOB APPLICATION SKILLS	INVESTIGATE EMPLOYMENT OPPORTUNITIES	EVALUATION OF PRE-VO-TECH COURSE

GRADES 11 and 12

VO-TECH EXPLORATION	NARROWING CHOICE	JOB APPLICATION TECHNIQUES

GRADE 10

SELF AWARENESS	HUMAN AWARENESS	GENERAL EXPLORATION

GRADE 9

In mentioning these it should be noted that more specific goals were reached as behavioral objectives were met. But, the behavioral objectives will not be made available until fully tested out and revised at the end of the 1976-1977 school year. At present there are approximately twice the number of behavioral objectives than were contained in the original proposal.

EVALUATION & RECOMMENDATIONS

a. Behavioral Objectives and Activities

The key to adapting the program to individual and class needs is the list of activities contained under each behavioral objective. Since the activities are designed to accomplish the goal of the objectives, more activities increase the likelihood of finding a classroom technique to suit the students. We attempted to have a substantial repertoire of activities on file.

To see how this worked, below is an actual behavioral objective with activities. The activities have a brief explanation for clarification.

Unit: Human Awareness

Behavioral Objective: Work towards developing a positive self image

Activities:

1. Fill in and discuss " Things I can be Proud of . . ." worksheet (See Appendix B)

2. Identify areas in which you have shown improvement in the past year.

3. Compliment Bombardment - students are divided into smaller groups and given strips of masking tape. One of the group is chosen to stand in the center while the remaining students write complimentary things about the person on the tape (as many as they can think of). Each student then says the positive statement aloud while sticking it on to the one in the center literally covering him with "good will".

4. Mirror Technique - each student looks into a small mirror and tells what they like best about themselves. This is an adaptation of a Psychodrama technique.

The activities were selected on the basis of their value in producing desirable interpersonal learning experiences. A variety of approaches was selected so that the counselor/teacher could choose the one that would work best with the group at any less activities to accomplish behavioral objectives. Other groups needed no activities at all in certain areas! In the majority of instances, activities were chosen on the basis of their relationship to the verbal and non-verbal tendency of the group. There was satisfactory success in this approach. Most students had initial resistance to some counseling techniques but this was expected. The resistance dissipated in all but one group. However, the use of alternative activities enabled that group to function smoothly.

Additional work activities were used such as the General Career Exploration Outline (See Appendix C). This is but one of several worksheets developed for use in the program.

b. Planning

1. Organization

The program had little difficulty getting organized. Volunteers were obtained from the 9th and 10th grade and they were scheduled on the days where they had a study hall instead of physical education class. The only requirement for acceptance into the program was an interest in pursuing Vo-Tech training in one of the vo-tech fields to be offered by the proposed Beaver County Area Vocational-Technical School. Scheduling out of study periods permitted implementation with the least amount of change in the class schedule.

Some classes were doubled-up on Wednesday and Friday so that these days could be used for speakers and field trips.

Recommendation 1: More activities and resources are still needed.

HAVE began on Monday, November 24, 1975 and ended April 23, 1976, approximately one semester in length. 67 ninth graders participated at the outset; 61 completed the program. These were divided into 6 groups, meeting 3 times each week in the Career Resource Center and available classrooms. The Career Resource Center was used during the Career Exploration Unit while the Human Awareness & Self Awareness units were conducted in classrooms. This permitted maximum access to the Career Resource Center by the other members of the student body.

2. Speakers

Using all available resources, people were contacted and asked to come in and speak to the students. This was done in person and/or by telephone. Verification was sent out in the mail and a "Model for Career Consultants" was enclosed for the speaker's use. This model contains 10 suggestions to aid the speaker in focusing on the program's goals. (See Appendix D.)

Shortly before the scheduled date, a telephone call was made to each prospective speaker. Students were prepared before the speaker came and a follow-up discussion was held after the speaker had finished. Several things became evident in following this procedure:

1. Cancellations were difficult to handle when given less than a day in advance. Earlier notice could have given enough time to get a substitute. Out of 5 scheduled speakers: 2 cancelled within 24 hours of the scheduled time but rescheduled for a later date; 1 was a no-show.

2. Few laborers were willing to take a morning off work and lose pay.

In spite of what would be considered a disappointing average, there were 4 good talks given, with excellent student reaction. There was a demand for more speakers.

Recommendation 2: Schedule the course as an elective for potential Vo-Tech students.

The most difficult aspect of the Pre Vo-Tech program was to co-ordinate the scheduling of speakers and organizing of field trips.

3. Field Trips

There were 4 field trips taken: 3 to Parkway West Area Vo-Tech School and 1 to the Aliquippa School of Beauty Culture. This was done to familiarize each student with the teaching procedures and give them a chance to observe Vo-Tech training in progress. Both of these schools cooperated with Hopewell School District in accepting students for vo-tech training.

No problem was encountered on the field trips. The Hopewell administration was extremely cooperative in granting the field trips and the cooperating schools were informative and gracious while the students were there. This was extremely successful from the reaction the students gave.

Recommendation 3: Provide a stipend for guest speakers, particularly working men who take time off.

Recommendation 4: Utilize alternate speakers from school (i.e. nurse, maintenance personnel, etc.)

Recommendation 5: Send earlier notices to several potential speakers in each field.

Recommendation 6: Don't wait until 2nd half of program to bring in speakers. Do them all along.

Recommendation 7: Someone must cover classes when the counselor/teacher is on field trips.

Recommendation 8: Make arrangements to have students placed in a Vo-Tech class of their choice on field trips to Vo-Tech Schools.

---

c. Teaching

The counselor/teacher functioned as a facilitator whose goal was to create a learning environment in the classroom. Lesson plans were an important part of the classroom planning. Our goals seemed to be accomplished when seen in the light of the student evaluation and Pre-Test/Post-Test results.

d. Pre-Test/Post-Test

The testing instrument was a variation of the Knowledge of Occupations Test developed by LeRoy G. Baruth and published by Psychologists and Educators, Inc. The pre-test was administered just prior to entering the General Career Exploration Unit. The post-test was administered during the last week of the program. The results of the testing were overwhelmingly favorable. The post-test showed significant improvements over pre-test results:

	PRE TEST	POST TEST
Average Score	47.6	59.4
Standard Deviation	12.0	8.5

Perhaps the most startling statistic is that in the post test only 4 students scored below the pre-test average! The following page contains graphs illustrating the pre-test/post-test results.

Recommendation 9: Devise a test that will more appropriately measure the program's effectiveness, one that is geared specifically to Vo-Tech careers.

---

e. Experimental vs. Control Group

Another evaluation instrument was employed with the help of an undergraduate student from the University of Pittsburgh Department of Vocational Education. The purpose of the questionnaire was to determine the sources of Occupational information, Occupational influence, Educational information, and several other areas. The questionnaire results will be used in a research project at the University of Pittsburgh which will be published in the fall of 1976.

For our purposes, 60 students in the pre-vo-tech classes answered the questionnaire while 48 students from grades 10-12 were randomly selected to participate. We distinguished between students in the vocational curriculum, college preparatory and general course. Because the computer was primarily

BEST COPY AVAILABLE

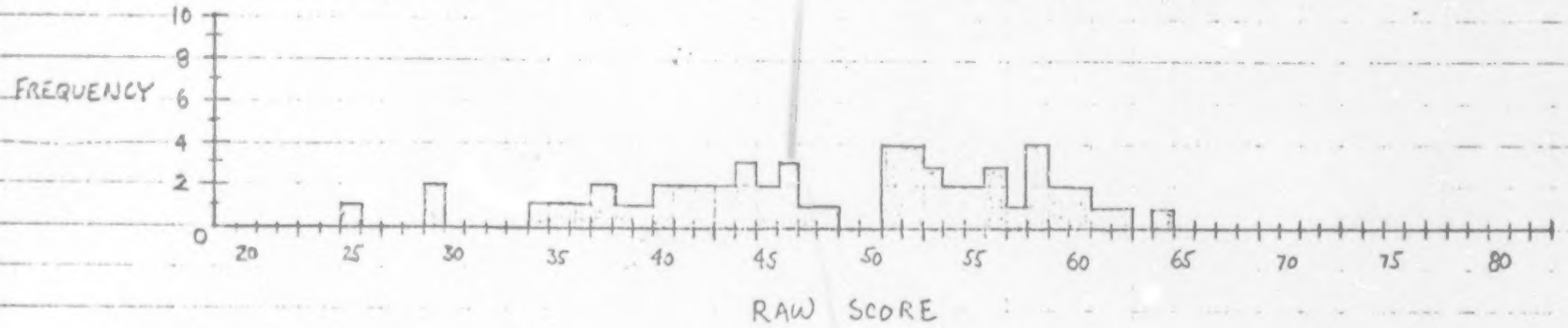


FIG. 1 PRE-TEST RESULTS: AVERAGE SCORE 47.6 (to nearest .1)
STANDARD DEVIATION 12.0 (to nearest .1)
NUMBER TESTED 58

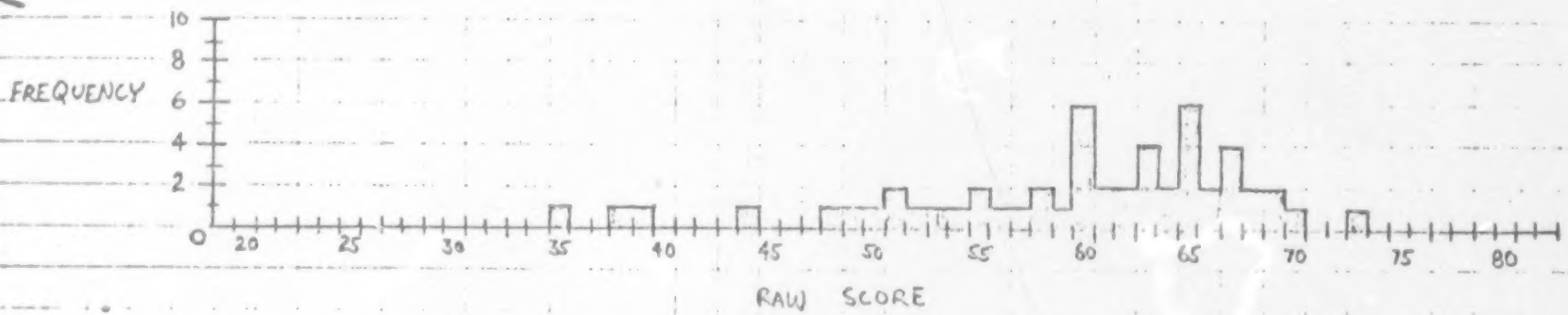


FIG. 2 POST-TEST RESULTS: AVERAGE SCORE 59.4 (to nearest .1)
STANDARD DEVIATION 8.5 (to nearest .1)
NUMBER TESTED 51

programmed for the research project, the figures available for comparisons are those of students in the vocational curriculum.* With these figures the Control group (C) consisted of 8 students, and the experimental group (E) consisted of 35 students.

The findings from this study have been reduced to a relatively small number of statements and figures. The complete study is available in raw form on a computer print-out.

The most obvious difference was in the degree of counselor help and influence:

1. As a source of Occupational Information

   E 97% helpful
   C 75% helpful

2. As a source of Occupational Influence

   E 77% influential
   C 37% influential

3. As a source of Educational Information

   E 85% helpful
   C 63% helpful

4. As a source of Educational Influence

   E 77% influential
   C 25% influential

This was expected in view of the unavoidable contact the counselor had with the students once they entered the program.

HAVE produced several other more interesting results:

1. The peer group influence as a source of occupational information had a greater impact on E than the peer group did to C. In fact, the impact was

---

*Vocational Curriculum was defined as "a program which prepares you to work in an office or in a shop or factory, or to enter a post-high school vocational-technical program or become an apprentice after high school" (including Agricultural, Business, Distributive Education, Home Economics, Health related occupations, and trade and industrial education).

almost reversed: 72% of E found their friends helpful while only 37% of C could say the same.

2. While the above was true, E sought information on educational programs from other sources. Friends, student co-workers and parents were less apt to give E helpful information about educational opportunities. The statistics showed that E had a tendency to go to sources such as Books and Catalogs, Radio, TV and the Counselor.

3. This trend is also evident in the Source of Occupational Information. The following table illustrates the point:

		Helpful	Not Helpful
BOOKS	E	97%	3%
	C	75%	25%
PAMPHLETS	E	88%	12%
	C	75%	25%
COMPUTER SOURCES	E	72%	28%
	C	22%	88%

The most significant difference is in the area of Computer Sources. This is believed to be a result of the program's utilization of PENNSCRIPT* which resembles computer cards.

In summary, students in HAVE appear to seek help in more reliable sources than those who are not in the program. They also seem to use the sources of information that are available more often and with more positive results than the other students.

---

*See Appendix C - General Career Exploration Outline: Question H.

f. Past vs. Present Applications to Vo-Tech Programs

"This year's selection process was greatly improved due to prior student awareness of the program and its relationship to their occupational goals. This we feel is a direct result of the Pre Vo-Tech Program." This excerpt was from the memo sent to the principal and other administrative officials from the Counseling Supervisor and Vocational Counselor who interviewed applicants for the cosmetology program.

The same result was obtained when interviews were undertaken for admission to Parkway West Vo-Tech school. In this instance the counselor from Parkway also interviewed, and the observations were equally encouraging. The efforts of HAVE were reflected in three areas:

1. Increased number of applicants
2. Better knowledge of vo-tech training
3. The written as well as verbal reasons for placing applications

g. Students' Response

A questionnaire was distributed to the students containing basic inquiries as to a) did the students like the course, and b) has it helped them. A total of 34 returned the questionnaire with the following results:

Like	Dislike	Helped	Didn't Help
30	4	32	2

Forty-three (43) students expressed a desire to continue the program in the 10th grade; 14 new members are already signed up. We expect more once the new school year begins in September 1976.

SUMMARY

1. The Behavioral Objectives were met; the activities were successfully used.
2. Organizing the program was relatively simple. It required and received cooperation from faculty and administration.
3. Guest Speakers did not turn out in the numbers we hoped for, but those that came contributed greatly.
4. Field Trips were a great success.
5. The teaching goals were met.
6. Pre-Test/Post-Test results displayed significant success in student learning levels.
7. The Experimental vs. Control group questionnaire gave reason to believe
   a. that students in HAVE sought help through more reliable sources,
   b. that students in HAVE use available vo-tech material more often
   c. that students in HAVE achieve more positive results from these sources that other students.
8. In comparing the past vs. present applications to Vo-Tech programs, HAVE played an important role in improving the quality of the applicant, the number of applicants and the reasons for seeking Vo-Tech training.
9. The student evaluation of HAVE showed that, at least in their eyes, the program was a success.

BEST COPY AVAILABLE

APPENDIX A

SELF-AWARENESS - "Coat of Arms"

Each student draws the outline of a shield or coat of arms and divides it into six or eight sections. The student fills each section with a drawing representing himself. Sample topics of a section include:

I feel most at ease when _____;
My most valued possession is _____;
My greatest success has been _____;
I would want people to think of me as _____.

Students thus depict their feelings, interests, goals, etc.

HUMAN AWARENESS - "Bomb Shelter"

Students fantasize a nuclear explosion has occurred. They are in a bomb shelter that can sustain the lives of 5 people long enough for the radiation to dissipate. Each student is given a list of 10 people from whom they must select the 4 others who will inhabit their shelter and perhaps rebuild society. The people on the list are described by sex, age, occupation, physical appearance, and social mores. Students decide for example from among a radical black engineer; a handicapped English teacher; a white, upper-class, arrogant teen-ager; an elderly compassionate janitor; etc. Discussion enlightens students to their values and exposes them to students whose values are different from theirs.

GENERAL CAREER EXPLORATION - "Product Review"

A product is traced to its beginnings as students brainstorm occupations throughout it's existence. For example a leather purse is traced from the stores salesperson, to the warehouse people, to the delivery truck driver, to the processing plant occupations, to the stockpens where the cow was bought, to the farm where the cow was raised. Students not only discuss variety of jobs but recognize importance and worth of all jobs to finished product.

VO-TECH EXPLORATION - "Career Demonstrators"

People in occupations that the Vo-Tech school will train students for come to class and demonstrate what they do on a typical day on the job. They come in "work" dress and bring sample tools when possible. These are taped to add to the Career Resource Center materials.

EMPLOYMENT SKILLS - "Talking Job Application"

A student is selected to be a talking application blank and questions a student job seeker - name, age, marital status, education, past work experience, etc. Students learn terminology and see importance of education and training.

APPENDIX B

Things I can be proud of. . . .

Academic

1

2

3

4

Athletic

1

2

3

4

Social

1

2

3

4

Working

1

2

3

4

Signed _____

APPENDIX C BEST COPY AVAILABLE

GENERAL CAREER EXPLORATION OUTLINE

A good way to prepare for your future career decisions is to get to know yourself better and to become acquainted with the world of work. This research outline should help you gain information about job areas.

JOB CLUSTER THAT I WILL INVESTIGATE _____

A. What does a worker in this area do? Would you like these tasks?

_____

_____

_____

_____

B. Which high school subjects are most important in this career?

1. _____ 2. _____

3. _____ 4. _____

C. Check the highest level of education necessary for this career:

Less than high school _____
High school diploma _____
Technical or vocational _____
On the Job Training _____
College degree _____
More than college _____

D. Check working conditions that would apply to a worker in this area:

Vibrations _____ Danger of burns _____
Moving Objects _____ Electrical Hazards _____
High places _____ Radiation _____
Explosives _____ Others: _____

E. Hours, earnings, and benefits:

Minimum salary _____ Maximum salary _____

Typical working hours _____

Benefits _____

Are wages different in different areas of the US? _____

F. Physical requirements - Can you meet these requirements?

_____

_____

_____

G. What abilities are required for this area? Do you have those?

_____

_____

_____

H. What opportunities are available in this area? Check PENNSCRIPT

_____

_____

I. Outlook for the future in this area? Will there be job opportunities?

_____

_____

J. Advantages and disadvantages

_____

_____

_____

K. List at least three jobs that are related to this career:

1. _____
2. _____
3. _____

L. Sources of further information (addresses)

_____

_____

_____

M. What sources did you use for the above information?

_____

_____

_____

_____

_____

BEST COPY AVAILABLE

APPENDIX D

A MODEL FOR CAREER CONSULTANTS

The primary objective is to keep the student in mind. It is important to accurately portray the career that you represent so that the student may avoid misdirection and fantasies associated with a career. Seeing the glamor and rewards of a profession is only valuable when coupled with the knowledge of the motivation and hard work needed to master proficiencies that lead to success. A balanced portrayal will better prepare a student to take appropriate steps in career planning.

SUGGESTIONS:

1. Talk about tools and equipment on the job.

2. Talk about people who have need of your services.

3. Explain a typical work day.

4. Try to deal with information about jobs and careers in the local area.

5. Discuss typical problems that must be dealt with in your job. (Perhaps tell of some that you personally have encountered.)

6. Discuss the different ways that someone can get into your profession.

7. Tell how someone advances in your career.

8. Does "back-scratching" play a role in your job? What are some advantages and disadvantages to this?

9. Discuss what you would have liked to have known about your occupation before you entered. Knowing what you do now, would you have done anything differently?

10. What is your greatest personal satisfaction?

CE 009 730

ACCESSION NUMBER: VT103533

PUBLICATION DATE: 30JUN75

TITLE: HEMPFIELD PILOT PROJECT FOR EDUCABLE MENTALLY RETARDED (EMR) AND REGULAR CLASS STUDENTS. FINAL REPORT.

PERSONAL AUTHOR: CACI, WILLIAM P.

DESCRIPTOR: *EDUCABLE MENTALLY HANDICAPPED; *WORK EXPERIENCE PROGRAMS; *AUDIOVISUAL INSTRUCTION; *PILOT PROJECTS; *FEEDBACK; PROGRAM DESCRIPTIONS; SECONDARY EDUCATION

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 14P.

ABSTRACT: THIS PILOT PROJECT ATTEMPTED TO DETERMINE THE EFFECT OF IMMEDIATE AUDIOVISUAL FEEDBACK IN THE FORM OF VIDEO TAPE RECORDINGS ON OCCUPATIONAL-RELATED BEHAVIOR PATTERNS OF EDUCABLE MENTALLY RETARDED AND REGULAR CLASS STUDENTS IN A SECONDARY LEVEL WORK EXPERIENCE PROGRAM. THE REPORT ENUMERATES THE OBJECTIVES, DESCRIBES PROJECT IMPLEMENTATION, AND PRESENTS THE FINDINGS AND CONCLUSIONS. PRIMARILY, IT WAS NOTED THAT STUDENTS DID ALTER SOME BEHAVIOR PATTERNS ON THE JOB. ACCORDING TO STATEMENTS BY THE STUDENTS, THEY WERE MORE AWARE OF THEIR BEHAVIOR AND DERIVED A NEW SENSE OF ACCOMPLISHMENT IN THEIR PERFORMANCE. SEVERAL INSTANCES ARE CITED OF STUDENTS ALTERING THEIR BEHAVIOR AFTER VIEWING THE TAPES, WHILE PREVIOUS ATTEMPTS TO CHANGE THEM HAD PROVEN INEFFECTIVE. PREVOCATIONAL STUDENTS WERE AFFORDED A CLEARER CONCEPT OF THE REQUIREMENTS OF DIFFERENT OCCUPATIONS, AND EMPLOYERS WERE PROVIDED WITH AN ACCURATE RECORD OF AN EMPLOYEE'S PERFORMANCE FOR REVIEW. AN ADDITIONAL USE FOR THE TAPES WAS AS PRIMARY MATERIAL FOR PREVOCATIONAL CLASSES TO INDICATE THE ABILITIES AND REQUIREMENTS NECESSARY FOR VARIOUS JOBS. A NUMBER OF RECORDED FINDINGS AND REACTIONS INDICATED THAT THE PROJECT WAS SUCCESSFUL. A SUMMARY OF EDITED AND UNEDITED PROJECT-DEVELOPED VIDEO TAPE MATERIAL IS APPENDED. (NJ)

INSTITUTION NAME: HEMPFIELD HIGH SCHOOL, LANDISVILLE, PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPT. OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 533

FINAL REPORT

HEMPFIELD PILOT PROJECT FOR EDUCABLE MENTALLY RETARDED (EMR) AND REGULAR CLASS STUDENTS

Project Number 19-3803

William P. Caci

Hempfield High School
Landisville, Pa. 17538

June 30, 1975

PENNSYLVANIA DEPARTMENT OF EDUCATION
BUREAU OF VOCATIONAL EDUCATION
RESEARCH COORDINATING UNIT

VT 103 533

TABLE OF CONTENTS

PAGE

INTRODUCTION..... 1

FINDINGS AND ANALYSIS..... 3

CONCLUSIONS AND RECOMMENDATIONS..... 7

SUPPLEMENTARY AND APPENDIX MATERIAL..... 10

INTRODUCTION

This pilot project (19-3803) basically attempted to determine what effect the introduction of immediate audio visual feedback, in the form of video tape recordings, had on the occupation-related behavior patterns of EMR and regular class students on a work experience program at the secondary level.

Approximately 40 students, half of whom were classified as Educable Mentally Retarded, were to be involved in the project. Of the forty students, 22 were males. Only juniors and seniors, 16 years of age or older, were involved in the project.

The program's objectives included the following:

1. To make available to work experience students an accurate and immediate description of their actual job performance through the use of video tape.

2. To provide a library of video tapes of local students in local work stations for use by work experience students, employers, prevocational students, parents, teachers, counselors, and the work experience coordinator.

3. To show parents another view of the progress and range of achievement of their children in the work program and the extent of occupational involvement.

4. To assist participating work program employers in evaluating their training and supervision of work experience students.

5. To introduce the work experience program and particular student abilities to those employers who previously had not participated in the program in hopes additional work stations be made available for the program.

6. To assist the work experience coordinator counsel students on the program.

7. To illustrate, via video tape, various occupations and their specific and general requirements to prevocational class students.

8. To attempt to involve the community in the objectives of the work experience program.

In order to meet the objectives of the program, the project director was equipped with a portable video tape camera, recorder, and other necessary equipment to record students at their work stations performing their tasks.

The project director first informed the various employers and students of the pilot project and its objectives. He then secured their cooperation and scheduled recording dates.

To present a comprehensive picture of the student's performance and the specific occupations and their requirements, a number of recording dates were scheduled and a number of tapes concerning an individual occupation were recorded. In addition, the students and their employers were interviewed before and after each tape session to record their reactions and suggestions of the tape sessions.

Unedited tapes were immediately shown to the work experience students and their employers and their reactions and suggestions were noted. Completed tapes were then produced with the use of video tape monitors, an editing machine, tape recorders and other equipment. These tapes were then made available to work experience students, prevocational students, employers, and other interested parties.

The reactions and suggestions from these parties was then noted in order to assist the student in becoming more successful on the job and to continue the success of the work experience program at Hempfield High School.

FINDINGS AND ANALYSIS

A number of findings, suggestions, and reactions were recorded that indicate the project was a qualified success offering much potential for further research.

Primarily it was noted that students did alter some of their behavioral patterns on the job due, in part, to the video tape sessions. The change in behavior was either recorded at a second tape session or employers reported the behavior changes at a later date. They attributed much of the positive changes to the video tape experience.

Every student who viewed their performance on video tape reacted in some manner. They readily noted positive and negative aspects of their behavior to the project director. In most cases students were somewhat surprised at how well they did their work. In many instances the students indicated they would alter their negative performances in the future becasue of what they "saw."

Edited tapes often eliminated the mistakes or negative performances of students and they came to thank the project director, stating they would try and do it "right" in the future. Employers later reported students did, in fact, alter their performances in a positive manner. Employers were eager to have other employees taped and were generally very impressed with the project's immediate results.

Students were impressed with the project and influenced by what they saw of themselves. One student, for example, who worked in a restaurant as a bus boy continually dropped food onto and off a table when he cleaned the table. He was told and shown repeatedly by his employer of this fault and how to do the task properly, but it was to no avail.

However, after viewing how he did the task improperly on video tape, he exclaimed, "Oh! Is that what I was doing wrong." The tape also revealed how the job was to be performed properly. The tape was then run back and forth a number of times to help "drive the point home" to the student.

The boy was taped again and did the task properly. He also noted many other items he did while performing his work, and according to his employer, tried to correct them as best he could. Another major change was how carefully the boy now moved his busing cart through the restaurant and avoided costly "accidents," especially during the rush hour at the restaurant.

Other specific improvements included a girl lowering her voice at a lunch counter after the sound track on the video tape clearly indicated her voice did indeed carry all through the dining hall. This particular student had refused to believe this and the point of contention became somewhat serious between her and her supervisor. Another boy became more careful in handling liquids after noting how much he repeatedly would spill when filling containers.

One boy, working in a warehouse, found he moved entirely too slow to keep pace with his co-workers. He did the job properly, but his speed needed some improvement. His first reaction to this observation, however, was to deny his speed was questionable. But after viewing the tapes he agreed he was a "little slow" and commented, "I would never have believed it unless I saw it, but I guess the tapes don't lie."

Another student was an excellent worker most of the time, but he often got "side-tracked" during working hours by some small distraction. The unedited tapes were often

interrupted and required repetition of a task, indicating his lack of concentration. His faults did not show up on the tape, but he is now more aware of his concentration shortcomings at work.

Other students in many cases took notice to, and improved their clothing, grooming, and general appearance on the job and in school. Some noted their reactions to customers they served and said they would change their manner of expression to become more polite and friendly to the general public they had to serve.

Prevocational students were especially impressed by what they saw and heard on the tapes. They noted with awe the tasks performed by workers who they knew only as fellow students. They were often surprised at how much the job entailed, especially in relationship to what they had previously thought the job required.

Reactions from the prevocational students ranged from, "You (a fellow student and classmate) do all that!" to "How did you get to learn that stuff?" or "I could never do that!" or "I think I would like that job." to "I don't want any parts of that job."

The work experience program coordinator noted the reactions of the prevocational students viewing the tapes and now has a better idea of the work interest of the particular students. The students themselves also know what jobs now interest them and what jobs they certainly want to avoid or approach in the future. This information has helped to make job selection and success more realistic for the prevocational students. The coordinator's task has been simplified and the selection of job stations for certain students is more accurate.

Employers working with the program have viewed some tapes of other students and have expressed negative or positive interests in the student because of what they saw and heard via the video tapes.

One employer noted that a boy he was viewing would be a "good" candidate for employment with his firm because of how well the boy moved around and handled delicate objects. Another employer thought a boy moved "too slow" for his business. Employers thus got a preview of students actually working, a process that saved time for all concerned and was previously unavailable before this project. The action also may have saved embarrassment to a student and the employer because another "failure" by the student would be avoided.

Generally, it was found that students, employers and prevocational students were more than eager to view the tapes to see things for themselves.

CONCLUSIONS AND RECOMMENDATIONS

A number of objectives were achieved to term the project a qualified success, especially the objectives dealing with work experience students, their coordinator, and prevocational class students.

According to statements they expressed during interviews, work experience students are more aware of their performances because of the video tape sessions in which they participated. Many students immediately changed some negative or poor performances after viewing themselves on video tape. Most students came away from the experience with a new sense of accomplishment in their personal performances. They were anxious for other to view their work and them at work, regardless of some poor performances on their part. They generally indicated pride in their performances. An increase in self-esteem was most noteable among EMR students, but regular class students also appeared to gain in self confidence according to the project director's observations and employer reports.

Prevocational students now have a clearer concept or knowledge of different jobs and what is required of those occupations. They can see and hear many of their own friends and fellow students doing different things on different jobs. Many of their previous conceptions of particular jobs have become obsolete. Students who were somewhat unsure of their abilities now meaningfully compare themselves to peers they associate with in everyday school life. Previous apprehensions or overconfidence is now put in perspective for these students, further helping them select suitable jobs that closely match their individual talents and personalities.

Employers found the video tape sessions to be of particular value, having an accurate record of an employee's duties and performances to review and evaluate at their disposal that is both objective and clearly presented. They can see the fruits and faults of their training procedures and are better able to know how to correct some techniques they use in supervision and training. They have a basis for which to correct behavior patterns of students working for them or who will be employed by them in the future.

The work experience coordinator now finds a large amount of guess work removed when attempting to place students in new or different occupations. He has at his disposal a library of video tapes involving local students in local occupations, most of which are familiar to prevocational class, regular class, and other work experience students.

The tapes can easily be used as primary material for any prevocational class. They indicate what abilities a person must or should command and what requirements specific jobs and companies require of their employees. Specific requirements of local job sites, difficult to successfully or adequately present in the past, are now plainly illustrated and explained visually and audibly. The work experience teacher does not have to rely exclusively on company produced audio visual materials for class which often use ethnic groups, settings, occupations or other factors unfamiliar to local students.

Technically, it was found the estimated time alloted for the project director to achieve his objectives was vastly underestimated. Actual taping of students working averaged six hours. Time required to tape interviews averaged another four hours. However, the most

time was required when the tapes were edited, especially since the project director was not skilled at the outset with media manipulation. The time required to tape the students, the employers, the job site and the occupation, plus travel time and the complete editing of the first tape amounted to approximately 100 hours. With some editing experience, the total time was cut to less than half for completed tapes. The project director estimates that with further experience, completely edited tapes of reasonable quality should average 30 hours.

It was found that one person could do the entire project, but assistance in the taping, editing, and transporting of equipment is highly recommended. Physically carrying the recorder and camera for hours at a time can strain a person to a degree which causes severe headaches and backaches due mainly to the tenseness of shooting and lugging dead weight.

All the objectives of the project were not reached due directly to an insufficient time allotment for the project director. The objectives concerning the presentation of finished tapes to parents, perspective employers and others were only slightly touched. These objectives should be achieved during the second year of the project. In addition, a more comprehensive sampling of local occupations should be added to the project's library for prevocational class students.

SUPPLEMENTARY AND APPENDIX MATERIAL

The following is a summary of edited and unedited video tape material taken by the project director. Tapes are keyed as follows: a "zero" series indicates unedited tapes; series "A" indicates edited tapes of EMR students; series "B" indicates edited tapes of regular class students; and series "C" indicates unedited introduction and fill-in material recorded to complete edited tapes.

01 - Ceramics Production: Illustrates a boy coming to work, receiving the day's production and working schedule, selecting, cleaning, and preparing the various molds. In addition it shows him pouring slip into molds, cleaning and recycling slip as well as the removing of greenware, and putting finishing touches to customer orders.

A1 - Ceramics Production: Illustrates video tape No. 01 with commentary and interview sessions with owner concerning the job, occupational outlook, pay, work load, responsibilities, requirements, and the work program.

02 - Assistant Cook: Illustrates a boy coming to work, receiving instructions, performing routine restaurant preperation work, cleaning of equipment, and the cooking of various foods.

A2 - Assistant Cook: Illustrates video tape No. 02 with commentary and interview session with owner concerning the job, occupational outlook, pay, work load, responsibilities, requirements, and the work program.

03 - Gas Station Attendant: Illustrates a boy coming to work, preparing to handle customers, changing tires, fixing batteries, filling gas tanks, giving tourist directions, handling credit card sales, and doing other routine functions of the occupation.

04 - Warehouse Loading Dock Assistant: Illustrates a boy working at a local distribution warehouse. Shows him coming to work, punching time card, checking work load with co-worker, loading various trucks and stock, consulting with foremen, and preparing various stocks for later shipment.

05 - Assistant Chef: Illustrates a girl working in a large restaurant. Shows her preparing various foods and making dishes customers order. Tape also illustrates her preparing area and foods for rush hour demands.

06 - Bus Boy: Illustrates a boy working in kitchen and busing tables in restaurant. Shows him coming to work, preparing kitchen area, busing tables, working an automatic dishwasher, and refilling various floor stocks and tableware.

07 - Autobody Repair Assistant: Illustrates a boy working in a large autobody repair shop. Shows him working with a journeyman on damaged car and the various processes and methods used to do work. Also it shows other journeymen at work.

B7 - Autobody Repair Assistant: Illustrates video tape No. 07 with commentary and interview session with shop foreman. Includes comments on the work program, occupational demands, future outlook, responsibilities, salary, and requirements of job.

08 - Foodline Assistant: Illustrates a girl working in a local restaurant. Shows her preparing for work, preparing foodline, working cash register, helping in kitchen, and waiting on customers.

09 - Book Store Assistant: Illustrates a girl working in a large book store. Shows her coming to work, receiving daily instructions, taking care of her book shelf section, answering phone, waiting on customers, working cash register, and setting up display area.

010 - Discount Store Clerk: Illustrates a girl working at a small special items discount store. Shows her stocking shelves, princing materials, waiting on customers, and checking daily inventory.

011 - School Cafeteria Workers: Illustrates school cafeteria workers cooking and preparing for daily meals and the use of large equipment. The tape also shows women serving students during lunch hour.

012 - Pratical Nurse: Illustrates daily routine of nurse at a home for aged. Shows how patients are handled and the requirements and duties necessary for good patient care. Tape contains scenes of nurse washing and feeding patient as well as taking daily health measurements, such as blood pressure and temperature.

013 - Supermarket Bager: Illustrates two boys working in a large local supermarket. Shows how boys check stock, help bag groceries, clean areas of store, and wait on customers. Tapes also include boys taking breakes and punching time cards.

014 - Dry Cleaning Workers: Illustrates a number of employees doing their work at a large dry cleaning establishment. Shows girls pressing and folding clothes or sewing and cleaning other garments. Tapes also illustrate a rug being cleaned and girls at counter waiting on customers.

015 - Assistant Shoe Department Manager: Illustrates a boy working in a large discount store"s shoe department. Boy is shown checking rack items, preparing shoes for display, checking inventory, unloading stock, pricing material and working with customers.

016 - Secretary: Illustrates a girl working in a college office with modern automatic machinery and equipment. Shows her obtaining day's work schedule, performing normal office duties, such as answering phones, running off materials, and typing various items.

C01 - Unedited scenes of local school exterior and introduction material concerning program objectives.

C02 - Unedited interviews of three employers for use with completed edited tapes.

CE 009 729

ACCESSION NUMBER: VT103539

PUBLICATION DATE: JUN76

TITLE: A PROFILE OF U.S. COMPREHENSIVE HEALTH PLANNING AREAS. AGRICULTURAL ECONOMIC REPORT NO. 339.

PERSONAL AUTHOR: FITZWILLIAMS, JEANNETTE

DESCRIPTOR: *HEALTH PROGRAMS; HEALTH SERVICES; HEALTH FACILITIES; *FEDERAL PROGRAMS; *RURAL URBAN DIFFERENCES; RURAL CLINICS; RURAL POPULATION; URBAN AREAS; URBAN POPULATION

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 42P.; AN ATTACHED COMPREHENSIVE HEALTH PLANNING AREAS MAP WAS NOT REPRODUCIBLE AND WAS REMOVED. IT IS NOT INCLUDED IN THE PAGINATION.

ABSTRACT: HEALTH PROBLEMS COMMON TO BOTH URBAN AND RURAL AREAS MAY BE DIVIDED INTO PREVENTION, HEALTH CARE, AND SUPPORT. THE RURAL HEALTH PROBLEM IS ONE OF IDENTIFYING UNIQUELY RURAL CHARACTERISTICS AND OF MODIFYING HEALTH PROBLEM SOLUTIONS TO MEET THESE RURAL NEEDS. THE REPORT FOCUSES ON THESE RURAL HEALTH PROBLEMS AND THE RELATIONSHIP BETWEEN RURAL POPULATIONS, HEALTH STATUS, AND THE COMPREHENSIVE HEALTH PLANNING PROGRAM (CHP). THIS DATA MAY BE USEFUL IN HELPING TO SOLVE SOME OF THE RURAL HEALTH PROBLEMS AND IS PREPARED FOR FOUR GROUPS OF USERS: (1) PLANNERS AT STATE, REGIONAL, AND NATIONAL LEVELS, (2) LOCAL PLANNERS AND DECISIONMAKERS, (3) PERSONS DOING CONSULTING, EDUCATIONAL, AND PROMOTIONAL WORK IN THE HEALTH FIELD, AND (4) CONCERNED CITIZENS. ELEVEN MAJOR TOPICS ARE INCLUDED IN THE REPORT: SUMMARY, CHARACTERISTICS OF CHP AREAS, TOTAL POPULATION AND LAND AREA, RURAL AND URBANIZED AREA RESIDENTS, MINORITIES, AGE GROUPS, ABILITY OF AREA TO FINANCE HEALTH SERVICES, INFANT BIRTHS AND DEATHS, POOR HOUSING, LACK OF READY ACCESS TO A PHONE, AND A RURAL OVERVIEW. FIGURES AND TABLES ARE BROKEN DOWN SO THAT THE CHARACTERISTICS OF THE RURAL OR URBAN POPULATION CAN CLEARLY BE IDENTIFIED. THE SUMMARY INDICATES THAT RURAL POPULATIONS DO NOT APPEAR TO HAVE AN EASY ACCESS TO HEALTH CARE CENTERS AS URBAN POPULATIONS DO, THAT THE MORE RURAL THE AREA THE GREATER THE PROBLEMS, AND RURAL PARTICIPATION IN CHP WAS GREATER THAN HAD BEEN EXPECTED. (TM)

REPORT NUMBER: AER-339

AVAILABILITY: PUBLICATION SERVICES, ROOM 0054-S, ECONOMIC RESEARCH SERVICE, U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C. 20250. (NO CHARGE)

SPONSORING AGENCY NAME: ECONOMIC RESEARCH SERVICE (DOA), WASHINGTON, D.C. ECONOMIC DEVELOPMENT DIV.

VT103 539

VT 103 539

A Profile of

U.S. COMPREHENSIVE HEALTH PLANNING AREAS

by Jeannette Fitzwilliams

Agricultural Economic Report No. 339
Economic Research Service, U.S. Department of Agriculture

PREFACE

When the 1966 Comprehensive Health Planning Act and the 1967 Partnership for Health Amendments were enacted, Congress sought to assure the "highest level of health attainable for every person, in an environment which contributes positively to healthful individual and family living." It recognized this goal could best be attained by continuous planning, followed by implementation. Both processes must involve the cooperation and collaboration of government, providers, and consumers of health services at the national, State, and local levels. After the work for this report was completed, Congress passed the National Health Planning and Resources Development Act of 1974, combining and strengthening the Comprehensive Health Planning Program, the Regional Medical Program, and the Hill-Burton Program.

Local planners and concerned citizens need norms for comparison as well as criteria to help in making local decisions. Planners, administrators, and legislators will need an overall picture of needs, resources, and progress.

To provide some of the data needed, particularly in rural areas, the Economic Research Service of the U.S. Department of Agriculture undertook a health research program. This profile is the first report developed from this research. One of its aims is to improve understanding of the term "rural." Another is to compare the more rural areas with the more urban areas and national averages for CHP areas. Attention will also be focused on how well the more rural areas are participating in comprehensive health planning. A final, and perhaps most important function, of this research is to provide decisionmakers, planners, administrators, and concerned citizens with data they might not otherwise have the resources to obtain for themselves.

The Federal agency with the primary responsibility for the Nation's health is the Department of Health, Education, and Welfare. The Department of Agriculture also has a role. Many of its programs are concerned with promoting and preserving the conditions essential to good health. Furthermore, the Rural Development Act directs the Secretary of Agriculture "to provide leadership . . . for coordinating a nationwide rural development program . . ." Health status and the availability of health care delivery systems are of vital concern to rural people and rural communities.

The *health* problem, which is common to both rural and urban areas, may be divided into three parts: (1) *prevention*, involving the control of communicable diseases and the problems arising in the environment (pollution, housing, or safety); (2) *health care*, dealing with medical research, manpower, facilities, and the treatment of medical problems; and (3) *support*, including planning, managerial expertise, data and computer backup, social services, and the health education of consumers.

The *rural health* problem is one of identifying uniquely rural characteristics and of modifying *health problem* solutions in light of these rural characteristics and needs. It may be divided into three parts: (1) adapting health care delivery systems to meet the needs of a sparse and dispersed population, often with transportation barriers; (2) making urban decisionmakers aware of rural problems, needs, and attitudes, so they will adequately provide for rural areas; and (3) reaching the rural population effectively to educate and motivate them to make the best use of the services provided.

This report provides data that may help solve some of these rural problems. It is prepared for four groups of users:

1. Planners at State, regional, and national levels who want a broad view for general evaluation purposes.
2. Local planners and decisionmakers who want to know how their areas compare with others and what other areas have similar problems.
3. Persons doing consulting, educational, and promotional work in the health field who want a ready reference.
4. Concerned citizens who want to know what the facts are, what to look for, and why.

WASHINGTON, D.C. 20250

JUNE 1976

CONTENTS

	Page
List of tables	ii
Summary	1
Characterization of CHP areas	2
Delineation of CHP areas	2
Area type	3
Congruence with planning and development districts	3
Formation status	3
Agency type or staffing characteristics	4
A bird's eye view of CHP progress	4
Plan of the profile	5
Total population and land area	5
Rural and urbanized area residents	8
The overall view	8
Areas with large centers of population	8
Areas with over 200,000 rural residents	11
The more rural areas	11
Minorities	14
Age groups	16
The young	16
The aged	16
Age and the ability to pay	21
Ability of area to finance health services	21
Infant births and deaths	22
Socioeconomic vs. health-related data	22
Infant mortality rates	25
Poor housing	26
Crowded units	27
Units lacking plumbing or both crowded and lacking plumbing	27
Lack of ready access to a phone	27
A rural overview	34
Participation in comprehensive health planning	34
The potential for rural influence	34
The non-SMSA only type of area	35
Areas that are over half rural	36
The future	36

RECEIVED
SEP 22 1976
Info. Acq., CVTE

LIST OF TABLES

Page

1. Location of CHP areas: Area type by region, May 1973 3
2. Formation status: Distribution of basic variables 5

3. Land area and population: CHP area averages 6
4. Size of area: Number of CHP areas 7

5. Urbanized area and rural population: CHP area averages 9
6. Highly urbanized areas: Number of CHP areas. 10
7. Over 200,000 rural residents: Number of CHP areas. 12
8. Highly rural areas: Number of CHP areas 13

9. Minority population: CHP area averages. 14
10. High proportion of minority population: Number of CHP areas 15

11. Age groups: CHP area averages. 17
12. The young—Extreme deviations from the average: Number of CHP areas . 18
13. The aged—Extreme deviations from the average: Number of CHP areas . . 20

14. Financial Ability: CHP area averages 22
15. Per capita income—Extreme deviations from mean: Number of CHP areas 23
16. High poverty areas: Number of CHP areas 24

17. Infant births and deaths: CHP area averages 25
18. High infant mortality areas: Number of CHP areas. 26

19. Housing—Crowding, lack of plumbing, and both: CHP area averages 28
20. Highly crowded areas: Number of CHP areas 29
21. Poor plumbing areas: Number of CHP areas 30
22. Very poor housing conditions: Number of CHP areas. 31

23. Lack of access to a phone: CHP area averages 32
24. Poor communications: Number of CHP areas 33

25. A summary of rural type areas 35
26. Over half rural and with selected potential problems 37

Sources Cited in Tables

(1) Land area: Bureau of the Census, tape for *1967 County and City Data Book*.
(2) Infants: U.S. Dept. Health, Education, and Welfare, National Center for Health Statistics, *Vital Statistics of the United States*, vol. I and II, 1966-68.
(3) Other: Bureau of the Census, first and fourth count tapes of the 1970 Decennial Census.

A PROFILE OF

U.S. COMPREHENSIVE HEALTH PLANNING AREAS

by Jeannette Fitzwilliams, Economist
Economic Development Division
Economic Research Service

SUMMARY

The Comprehensive Health Planning (CHP) Program, with its multicounty approach, broad coverage of health topics, and its insistence on consumer participation, provides the rural population with an opportunity to make its needs known and to influence plans to solve health problems. Rural participation in this program is greater than might have been expected.

In May 1973, the 3,045 counties and independent cities of the United States (excluding those in the New England States and Alaska for statistical reasons) were divided among 416 CHP areas, according to State plans. Half of the CHP areas, covering half the land area, were in a so-called "funded" status. Seventy-eight percent of the population–89 percent of the urbanized area population, but only 64 percent of the rural residents–lived in CHP areas containing a 314(b) agency, an agency funded by the Appalachian Regional Commission, or an area where the health planning was being done by the State agency. Fewer of the more rural areas were "funded" and a disproportionate number had no areawide organization.

Every area but one had some rural residents. One-fifth of the total rural population lives in the 49 CHP areas containing all or a substantial portion of urbanized areas of 500,000 or more. A full range of health services is likely to be present in these areas but may not be equally accessible to their rural population (who average only 10 percent of the total). Nationwide, only 26.7 percent of the population is rural, although in 205 areas rural people equal or outnumber the rest of the population.

In addition to the 49 CHP areas with large urbanized areas of 500,000 or more, there are 147

areas with medium sized cities of 50,000 or more. Nearly 43 percent of the rural population lives in these areas. Of the remaining 220 areas, 207 had fewer than 300,000 people in the whole CHP area.

A large population base and a center containing a full range of health services are desirable for each CHP area. This suggests enlarging CHP areas to facilitate planning for essential services. However, in many cases, this would be possible only by encompassing a very large geographical area. This may make it difficult to achieve the goal of local decisionmaking. There are 165 areas that do not have a city of 50,000 or more within a 50-mile radius of the center of their area; 52 had none within a radius of 100 miles; 40 had none in adjoining areas.

The CHP areas containing urbanized areas of 500,000 or more and those in regions II, V, and IX had the greatest number of people and, therefore, the greatest number of people needing medical care. They cover relatively small geographic areas and, in terms of characteristics pertinent to the planning of health care delivery, are on the favorable side of the national average with regard to minorities, age of the population, income, infant deaths, and housing that is crowded or lacking in plumbing. The more rural areas are on the adverse side of the averages. Thus, it may be more difficult for them to provide and maintain adequate health care delivery. Usually, the smaller the largest city in the area, the more adverse the average. Regions IV, III, and VI (in that order) have the greatest number of CHP areas appearing on the lists of areas with potential problems.

CHARACTERIZATION OF CHP AREAS

The Comprehensive Health Planning (CHP) Program got underway as a result of the enactment of the Comprehensive Health Planning and Public Health Services Amendments of 1966, followed by the Partnership for Health Amendments of 1967. Section 314(a) provided formula grants to the States for health planning at the State level and to coordinate, guide, and assist agencies at the local level. Section 314(b) provided funding for these local CHP agencies. This report focuses on the characteristics of local planning areas, with special attention to rural areas.

The CHP agency functions through its staff, its CHP council, and its various committees. Under the original law, the council is composed of providers and consumers, with consumers in the majority. Providers are those whose major occupations are providing, teaching, researching, administering, or financing health services. Consumers are all others. Today, elected public officials may be either, depending on their job. A CHP agency could come into being when area leaders formed a council and enlisted the support of all the component groups of the area. They would then have to obtain recognition by the State and apply for Section 314(b) funding. Composition of the council was one of the points most closely scrutinized in granting recogniton or funding to an agency. The Council had to provide broad representation from consumer as well as provider groups. It was this that made the CHP agency of special value to the rural community. Through representation on the council and its component committees, the rural population could make its needs known.

While the CHP council and staff were organizing and getting to know the health agencies of the area, data were gathered and local needs and resources were assessed. The purpose of this was to develop a plan stating goals and priorities and translating them into objectives that could be accomplished within specified time periods. (In actual practice the small staffs were so busy organizing and reviewing proposals they had little time for planning.) The CHP agency itself was not intended to implement these plans. It was to act as a catalyst. Through its power to review and comment, it could deter projects that did not fit into the plan.[1]

Delineation of CHP Areas[2]

The 314(b) agencies covered only part of the country. Much of what we wanted to know concerned areas that had not achieved funded status. Therefore, the State CHP agencies were asked to report how their States would be divided into areas. Since it was believed that State agency delineations represented long-range plans while 314(b) funding represented the momentary situation, it was decided to follow the State agency delineation whenever the two differed. In some cases, the State agency was unable or unwilling to assign a county to an area. In that case, the author made an arbitrary assignment after examining the planning and development district boundaries and road patterns. Even in funded or well developed areas, not all counties had joined the council; in some cases, planning was being done as if they had joined.

The location and county composition of the CHP areas may be seen on the map in a pocket of the inside back cover. The delineations and organizational characteristics are as of May 1973. They represent the latest information available at the time the programmer was ready to retrieve the data. Some changes have occurred since then (particularly in Florida) but they would have little effect on data presented in this profile. A few copies of computer printouts of working data (organizational factors for each CHP area, plus data on each of the variables discussed in this profile—by the CHP area, counties making up the CHP area, and State) were given each State's agency and a limited number of others interested in these details.

[1] The new National Health Planning and Resources Development Act of 1974 greatly improves the ability of the agency to plan and gives it funds to set implementation in motion. The actual implementation is still left to others.

[2] Alaska and the New England States are omitted because of statistical difficulties.

Area Type

CHP areas were characterized as SMSA[3] only, mixed, and non-SMSA (table 1). A further distinction was made according to the size of the largest urbanized area: 500,000 and over, 250,000 to 500,000, 100,000 to 250,000, 50,000 to 100,000; and cities of 25,000 to 50,000, 10,000 to 25,000, or under 10,000.[4]

Only 25 "all SMSA" areas were found. The 14 largest are shown separately as "SMSA only" in the tables, but the 11 smaller ones were combined with the smaller mixed area types. Five were in the 250,000 to 500,000 and the 100,000 to 250,000 class, and one was in the 50,000 to 100,000 group.

The large SMSA areas are to be found in every region, but most are in regions II, V, and IX. However, only in region II are they over half the areas in the region. In regions III, IV, VII, VIII, and X, over half of the areas were non-SMSA only. Fifty-three percent of the CHP areas had no city as large as 50,000.

Table 1—Number of CHP areas, by area type and region, May 1973

Area type	Region II	III	IV	V	VI	VII	VIII	IX	X	Total
					Number					
500,000 and over:										
1. SMSA	4	3	0	3	0	0	0	4	0	14
2. Mixed	5	2	5	9	5	2	1	3	3	35
SMSA only and mixed:										
3. 250,000-500,000	2	4	6	5	4	4	2	3	0	30
4. 100,000-250,000	2	7	19	16	8	5	3	3	2	65
5. 50,000-100,000	0	4	9	9	19	4	3	2	2	52
Non-SMSA only:										
6. 25,000-50,000	2	6	18	10	14	11	8	3	9	81
7. 10,000-25,000	1	10	21	5	5	18	13	3	14	90
8. Under 10,000	0	10	6	[illegible]	2	10	15	3	2	49
Total	16	46	84	58	57	54	45	24	32	416
					Percent[1]					
By regions:										
Types 1 and 2	56	11	6	21	9	4	2	29	9	12
Types 3, 4, and 5	25	33	40	52	54	24	18	33	12	35
Types 6, 7, and 8	19	57	54	28	37	72	80	38	78	53
Total	100	100	100	100	100	100	100	100	100	100
By major area types:										
Types 1 and 2	18	10	10	24	10	4	2	14	6	100
Types 3, 4, and 5	3	10	23	20	21	9	5	5	3	100
Types 6, 7, and 8	1	12	20	7	10	18	16	4	11	100
Total	4	11	20	14	1[illegible]	13	11	6	8	100

[1] Percentages may not add to 100 due to rounding.

Congruence with Planning and Development Districts

Since planning is occurring in many fields, it is important that plans in one field do not conflict with plans in another. To improve coordination and reduce fragmentation and proliferation of projects, many Federal programs require review and comment by planning agencies before funding. To facilitate this, States have been encouraged to establish, by legislative or executive action, planning and development districts for general planning purposes. Most authorizations to set up CHP areas require that they conform to the planning and development district boundaries unless major variations in health care patterns warrant exceptions.

When the 416 CHP areas were checked for congruence with these planning and development districts, it was found that:

285 or 69 percent were the same as 1 district.
30 or 7 percent were the same as 2 or more districts.
46 or 11 percent were similar to 1 or more districts.
55 or 13 percent were not similar.

The primary reason for the lack of similarity was that, at the date of comparison, the State had not determined boundaries for all its planning and development districts.

One beneficial byproduct of this high degree of congruence is that much of the data presented in this profile can also be used by those interested in planning in other fields such as housing, transportation, and any field where rural characteristics are important considerations for the planning process.

Formation Status

Formation status was determined for two reasons. First, we wanted to know whether rural areas and rural populations were sharing equitably in the CHP program. It was felt that their position along

[3] A Standard Metropolitan Statistical Area (SMSA) is defined by the Census Bureau as a county or group of contiguous counties containing at least one central city or twin cities with at least 50,000 population.

[4] The size of the urbanized area refers to the size of the largest SMSA city, not just that portion in a CHP area. Insignificant intrusions into a county were ignored.

the continuum from "undeveloped" to "in 314(b) planning status" would be one measure of this participation. Second, we wanted to prepare to measure progress and evaluate success. It was felt it would be misleading at some time in the future to compare an area that had just started with one that had been organized and operating for several years. It was quickly found that status as of the time of the study was the only feasible way of establishing a benchmark.

The original plan of study called for differentiation between 314(b) agencies in the planning or organizational stage, CHP's that were well developed but not yet funded, councils that were just starting to organize, and those areas that did not yet have a council. As answers came in from the State agencies, certain new classes had to be created. Most of the councils funded by the Appalachian Regional Commission were doing as much planning as many 314(b) agencies. They were given a separate code and included in the "funded" group. It was also found that certain councils would have to reorganize to conform to current State agency plans. Some would have to combine or expand to include additional counties; others were splitting into two or more areas. If any of the counties in the new area had been included in a 314(b) agency, then the whole of the new area was considered funded; otherwise, it was considered developing.

For Hawaii, Nevada, and Wyoming, the State agencies reported that, while subdivisions had been created for planning purposes, the planning always would be done by the State agency, with or without the assistance of a local council. (Hawaii later changed its mind.) These subareas were treated as CHP areas and considered funded, since planning was being done for them. Hereafter, this formation status is written "funded" to indicate that the classification includes more than just 314(b) agencies.

The formation status of the 416 CHP areas as of May 1973 was as follows:

111 in 314(b) planning status.
56 in 314(b) organizational status.
12 splitting or combining, with a 314(b) agency involved.
11 no 314(b) agency contemplated, planning done by State.
20 operational level with major source of funds from Appalachian Regional Commission or other Federal source.
210 "Funded" areas.

77 well developed.
3 splitting or expanding.
70 starting to develop.
150 developing areas.

56 undeveloped areas—no council formed.

Agency Type or Staffing Characteristics

Another characteristic closely related to formation status was agency type. This was principally concerned with who controlled the staff and whether there was a paid staff. It was felt that this, too, would be of importance in later evaluation of agency performance.

Initially, the distinction was made between CHP areas with paid staffs and those without. The latter might get some of their staff work done by the staff of the State agency or by volunteers—concerned citizens, businessmen and health personnel—including health planners who volunteered their own services or whose services were volunteered by their employers.

As data were assembled, it was necessary to distinguish between paid staff controlled by the CHP council and those controlled by councils of government or other planning and development district agencies. It was felt that the resources devoted to health planning and the direction that planning might take could be different in these two types of situations.

The question of outside control of health planning arose only when the staff was physically located with or paid by the other planning agency. If it were purely a housekeeping arrangement undertaken to minimize costs and facilitate the use of joint resources (such as data banks), the staff was considered to be under the control of the CHP council. But, if staff direction came from the other planning agency and the CHP council played only the minimal role required by law, control was considered to be in the hands of the other planning agency.

The staffing of the 416 CHP agencies was as follows:

210 CHP councils controlled their own staffs.
84 Staffs were controlled by another planning agency.
66 CHP agencies relied on the State agency or volunteers.
56 CHP areas had no council or staffs.

Forty of the 84 staffs controlled by other planning districts were in region VI. Regions IV and III had 24 and 12 respectively. All of the areas in Arkansas and Texas, 9 out of 10 in South Carolina, and over half of those in Oklahoma, Virginia, and North Carolina were in this category. For some areas, lack of resources—financial and human—motivated in part the consolidation of planning operations. However, in Arkansas, Texas, and Oklahoma (as a group), the more urban oriented CHP areas outnumbered their rural counterparts 2 to 1.

A Bird's Eye View of CHP Progress

As of May 1973, half of the CHP areas covered in this report were "funded," 36 percent were developing, and only 13.5 percent were still undeveloped (table 2). The formation status of the land area of the 3,045 component counties was almost the same.

However, where it really counts—in terms of total population—the record is much better; 78 percent of the total population lived in a county included in an area with a "funded" agency.

The rural population lagged behind the population of the urbanized areas. However, considering the difficulties to be overcome, with 64.4 percent of the rural population living in "funded" areas, rural residents have fared reasonably well. A quarter resided in areas with developing councils, and only 10 percent lived in areas where no councils were

Table 2—Distribution of basic variables, by CHP formation status

Variable	"Funded"	Developing	Undeveloped	Total
		Percent		
Number of CHP areas, May 1973	50.5	36.1	13.5	100.0
Land area, 1967	50.7	35.1	14.2	100.0
Population, 1970	78.1	16.0	5.8	100.0
Urbanized area	89.1	8.3	2.6	100.0
Rural	64.4	25.8	9.8	100.0
Minority	76.8	15.7	7.5	100.0
Under 20 years of age	77.6	16.3	6.1	100.0
20-64 years of age	78.7	15.7	5.7	100.0
Over 64 years of age	77.4	16.7	5.9	100.0
Poor[1]	72.2	19.5	8.3	100.0
In housing[2]				
Lacking plumbing	62.0	25.4	12.6	100.0
Crowded and lacking plumbing	57.6	27.0	15.4	100.0
Aggregate money income, 1969	80.7	14.2	5.1	100.0
Infants, annual average 1966-68:				
Births	77.7	16.[illegible]	6.2	100.0
Deaths under 28 days	77.1	16.2	6.7	100.0
Deaths under 1 year of age	76.3	16.5	7.2	100.0
Housing units, 1970[2]	78.7	15.7	5.6	100.0
Crowded	76.5	16.5	6.9	100.0
Lacking plumbing	65.5	23.7	10.8	100.0
Crowded and lacking plumbing	59.4	26.1	14.5	100.0
Without access to a phone	73.9	17.9	8.2	100.0

[1] Below the poverty line as defined for 1970 Census. [2] Crowded means more than one person per room of occupied housing unit. Lacking plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit.

Sources: (1) (2) (3)

forming. (This 10 percent represents 5 million rural people.)

While the proportion of births by formation status is approximately the same as for the population as a whole, there is a somewhat higher percentage of deaths among infants under 1 year of age in undeveloped areas.

Plan of the Profile

The rest of the profile will be devoted to a more detailed discussion of the variables listed in table 2. The significance of each variable for health planning will be explained in turn and the main features pointed out. Two types of tabular information will be presented for each variable: (1) CHP area averages and (2) the number of CHP areas that deviate widely from the national average. Tables showing deviations will also indicate the number of CHP areas appearing on prior lists of extremes. In essence, this second type of table will indicate potential problem areas.

The final section of the profile will summarize the situation for those areas with populations over half rural.

Each table will give the national averages or totals for the United States, excluding the New England States (region I) and Alaska (in region X). The data will be further broken down by region and by area type. There are great variations between regions and also between area types. It will become increasingly clear that there is no one type of rural community and, therefore, there is no such thing as *the* rural health problem or *the* solution to any one problem.

TOTAL POPULATION AND LAND AREA

The first thing a planner wants to know about his area is total population. This gives him the first crude approximation of the number of doctors, dentists, hospital beds, and other kinds of medical and support services the area will need. But population must be considered in relation to total land area (table 3). A large population in a small area permits large-scale institutional organization of health services, enabling economies of scale to be fully realized. Auxilliary services may be readily available. Persons needing medical help will find it relatively near in terms of miles and time. Transportation is likely to be available. This situation will usually face the planner in region II. On the other hand, a small population scattered over a large area may mean many small, struggling hospitals, doctors without the supporting services they need, and patients having to travel great distances to get help. This is likely to occur in region VIII or non-SMSA only CHP areas.

CHP areas come in all shapes, and the population center may be anywhere within the area. Thus, in some small areas, the distance from one corner of the area to a major hospital with specialized equipment may be over 100 miles.

The smallest area, the New York City Comprehensive Health Planning Agency with only 300 square miles, has the largest population (8 million). The largest area with a local council is in eastern Montana with 47,852 square miles for approximately 93,000 residents. The Nevada State agency plans for an area of just over 102,000 square miles—nearly the whole State—containing 215,450 people.

For a better understanding of the facts presented in the remainder of the profile, see table 3. Perhaps the most important item is the concentration of population in the CHP areas containing all or part of the largest SMSAs. Fifty-two percent of the total population lives in these 49 areas. In contrast, 16 percent of the population lives in the 220 areas with small cities only, but covering 55 percent of the land area. The average density for non-SMSA only type areas is well below 50 persons per square mile. Note, too, the varied distribution of population among the regions. Region V has nearly a fourth of the total population. Region IV is the next largest.

The average population for all CHP areas is 459,303. This figure is greatly influenced by the 49 highly urbanized areas (table 4). Only 90 of the 416 areas delineated for this study met the 500,000 figure called for in P.L. 93-641. Only 27 more are in the 400,000 to 500,000 group. But at the other end of the scale are 93 areas with fewer than 100,000 residents—all in areas where the largest city is under 50,000. Of these, 26 cover 10,000 or more square miles. In all there are 75 territorially large areas—42 of them in regions VI and VIII.

There are many reasons why it is desirable for a CHP area to have a large population. First, there are economies of scale in the planning process itself. Second, planning should be for a full range of medical services. This is most easily done if the area itself is large enough to support a full range of medical services and does in fact contain not only facilities for secondary care but also most of the very highly specialized services usually referred to as tertiary care. (A rule of thumb sets 100,000 as the minimum population base needed to support many of the more common treatments.) A third reason is that a large population usually implies one or more large urban centers providing not only the local tax base but also the nonmedical expertise and support services needed for efficient operation of a medical delivery system.

However, there are disadvantages of size as regards both population and territory. If the population or the territory is very large, the number of facilities that must be studied and reviewed in the planning process may become very large, and keeping in contact with all of the provider and consumer groups becomes a problem. Of particular importance to rural communities is the fact that as the CHP increases in size, they may find difficulty in

Table 3—Land area, population, and density: Average characteristics of CHP areas, 1970

Regions and area types	All CHP areas[1]	Land area		Population		Density	
		Average sq. mi.	Share	Average	Share	Weighted	Unweighted
	Number	*Number*	*Percent*	*Number*	*Percent*	*People/ sq. mi.*	*People/ sq. mi.*
All CHP areas	416	6,999	100.0	459,303	100.0	66	193
Regions:							
II	16	3,854	2.0	1,593,590	13.3	445	2,289
III	46	2,585	4.1	506,986	12.2	196	223
IV	84	4,375	12.6	374,199	16.5	86	94
V	58	5,760	11.5	756,927	23.0	131	198
VI	57	9,652	18.9	355,938	10.6	37	54
VII	54	5,329	9.9	222,985	6.3	42	51
VII	45	12,531	19.4	119,833	2.8	10	19
IX	24	16,100	13.3	957,556	12.0	59	256
X	32	7,674	8.4	194,160	3.3	25	37
Area type:							
500,000 and over:							
SMSA only	14	2,692	1.3	2,849,509	20.9	1,059	3,003
Mixed	35	6,165	7.4	1,682,994	30.8	273	414
SMSA and mixed:							
250,000-500,000	30	5,899	6.1	638,239	10.0	1,082	231
100,000-250,000	65	6,140	13.7	448,958	15.3	73	94
50,000-100,000	52	9,358	16.7	250,140	6.8	27	60
Non-SMSA only:							
25,000-50,000	81	7,813	21.7	191,180	8.1	25	44
10,000-25,000	90	6,962	21.5	132,759	6.3	19	31
Under 10,000	49	6,859	11.5	70,134	1.8	10	24

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded.

Sources: (1) (3)

Table 4—Size of area: Number of CHP areas, by population, with 10,000 or more square miles, 1970

Regions and area types	All CHP areas[1]		500,000 or more residents		400,000-500,000 residents		300,000-400,000 residents		200,000-300,000 residents		100,000-200,000 residents		Under 100,000 residents	
	Total	With 10,000 or over sq. mi.	Total	With 10,000 or over sq. mi.	Total	With 10,000 or over sq. mi.	Total	With 10,000 or over sq. mi.	Total	With 10,000 or over sq. mi.	Total	With 10,000 or over sq. mi.	Total	With 10,000 or over sq. mi.
	Number													
All CHP areas	416	75	90	11	27	2	34	11	67	9	105	16	93	26
Regions:														
II	16	0	13	0	0	0	1	0	2	0	0	0	0	0
II	46	1	11	1	0	0	2	0	9	0	14	0	10	0
IV	84	2	18	1	9	0	9	1	15	0	30	0	3	0
V	58	10	23	3	8	0	9	5	12	2	5	0	1	0
VI	57	20	6	3	7	1	8	5	14	3	17	4	5	4
VII	54	6	5	0	1	0	2	0	7	2	17	0	22	4
VIII	45	22	1	3	1	0	0	0	2	0	12	8	29	11
IX	24	6	11	0	1	1	2	0	2	1	3	2	5	2
X	32	8	2	0	0	0	1	0	4	1	7	2	18	5
Area types:														
500,000 and over:														
SMSA only	14	0	14	0	0	0	0	0	0	0	0	0	0	0
Mixed	35	5	33	5	0	0	0	0	2	0	0	0	0	0
SMSA and mixed:														
250,000-500,000	30	3	17	1	7	0	5	2	1	0	0	[illegible]	0	0
100,000-250,000	65	7	22	3	12	1	13	3	13	0	5	0	0	0
50,000-100,000	52	11	1	1	5	0	9	3	21	4	14	3	2	0
Non-SMSA only:														
25,000-50,000	81	[illegible]	2	0	1	0	6	2	19	2	44	10	9	5
10,000-25,000	90	22	1	1	2	1	1	1	11	3	31	2	44	14
Under 10,000	49	8	0	0	0	0	0	0	0	0	11	1	38	7

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded.

Sources: (1) (3)

winning a seat on the council or in finding a representative able to attend meetings. Unfortunately, existing population distributions frequently do not conform to optimum conditions for planning or delivering health care. The uniquely rural aspect of the health problem is how best to overcome difficulties inherent in geographic characteristics and population dispersion.

Two often related conditions of population and territorial size that pose particularly difficult problems for planners are reflected only indirectly in the accompanying tables. They are seasonality and geographic barriers. The population figures come from the 1970 census and represent the resident population as of April. Tourist and convention centers like New York, Miami, Chicago, San Francisco, and Los Angeles have large transient populations all year, with an especially heavy influx of tourists at certain seasons. Beach, skiing, and mountain resorts or areas containing national parks or forests can expect a great increase in population for weekends or for certain limited periods each year. For places like New York, where the transient population is fairly constant or predictable in size and is small in relation to the resident population, no great problem is presented, since the demand for health services by transients is adequately reflected in past use statistics and the supply of health personnel and facilities is above average.

The situation is very different for recreation-oriented areas. Population on any one day is often not only unpredictable, but may be a multiple of the resident population. Therefore, demand can be large in relation to services required by the resident population. Furthermore, the nature of the recreational activities is likely to cause an unpredictable demand for emergency service, particularly on weekends. Planners must cope both with the problems of providing facilities and personnel for only limited periods of the year and providing that service in what are usually considered "off-duty" hours.

Geographic factors beyond size of area may affect patterns of transportation, consumption, and communication. The most common barriers are mountains and rivers. Both increase the time required to reach or provide medical help. Roads may be impassable for long periods of time. Mountainous areas with sparse, widely dispersed populations are often the locale for accident-prone industries such as logging and mining. Today, they are often the Mecca for the vacation-bound tourist.

RURAL AND URBANIZED AREA RESIDENTS

When a health planner, administrator, or legislator looks at population data, one of the first things he asks himself is, "Where are the rural and urbanized areas located?" He then evaluates this information.

What does this distribution mean in terms of (1) accessibility to health care, (2) manpower and facilities needed and type of health care delivery system that can be used, and (3) the allocation of resources among communities? If he is responsible for the organization of the council or is concerned with rural problems, he may also be concerned with the ability of the rural residents to make their influence felt. Policymakers must consider the extent and type of dispersion that exists, what it implies for the decisions they have to make, and the probability they will be successful in achieving their goals.

The Overall View

As is to be expected, 75 percent of the people who live in the central cities and their surrounding suburbs are to be found in those areas containing the largest SMSA cities (table 5). What is perhaps less expected is that one-fifth of the rural population is also found in these same areas. Of the remaining rural population, 42.8 percent is distributed to CHP areas with smaller SMSAs, with only 36.8 percent living in CHP areas where the largest city is less than 50,000. Rural residents—those living in the country or places of under 2,500—are to be found in every CHP area except the New York City area. It is common practice to use "nonmetropolitan," meaning non-SMSA, as a synonym for rural. However, it should be remembered that 30 percent of those the 1970 Decennial Census calls "rural residents" live in the SMSA counties. Recent additions to the SMSA list have raised this figure to 38 percent.

In tables in this report, when rates or percentages are given, both the weighted and unweighted averages are shown. Perhaps the reason for this can best be understood in relation to "percentage rural." If the percentage rural in each CHP area is multiplied by the total population for each area, the total number of rural residents will be obtained—50.9 million. If this 50.9 million is divided by the 191.0 million for the total population covered by this report, the answer is 26.7 percent. This is a weighted average since the size of the population in each area is taken into consideration. But 52 percent of the total population lives in the type of area where the weighted average for the rural population is very low—5.3 and 13.9 percent respectively. When problems concerning all CHP areas are being considered, the unweighted average, obtained by adding the percentages for each CHP area and dividing by the number of areas, may be more meaningful. The "all CHP area" unweighted average for percentage rural is 47.2 percent; 205 of the 416 CHP areas are at least half rural. When the areas are disaggregated by area type, differences between the weighted and unweighted averages are small. Within regions, the differences can be sizeable, principally because of the presence of one or more of the large SMSAs (table 1).

Areas With Large Centers of Population

Lacking more specific information, for this study it was assumed that specialized medical equipment and personnel would most likely be found in CHP areas with large centers of population. There are some areas with cities near the 50,000 population

Table 5—Urbanized area and rural residents: Average characteristics of CHP areas, 1970

Regions and area types	Population							
	Average size		Share of all CHP areas		Share of each area			
					Weighted		Unweighted	
	Urban-ized area	Rural	Urban-ized area	Rural	Urbanized area	Rural	Urbanized area	Rural
	Thousands	*Thousands*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
All CHP areas	267	122	100.0	100.0	25.3	47.2	58.1	26.7
Regions:								
II	1,272	219	18.3	6.9	57.4	28.4	79.8	13.7
III	290	155	12.0	14.0	26.3	56.3	57.3	30.6
IV	141	154	10.7	25.4	21.3	53.7	37.6	41.2
V	455	198	23.8	22.5	33.9	43.1	60.1	26.2
VI	182	98	9.3	11.0	30.9	37.7	51.0	27.5
VII	97	77	4.7	8.1	14.8	52.6	43.6	34.4
VIII	53	40	2.1	3.5	14.2	52.2	44.0	33.0
IX	754	100	16.3	4.7	44.1	30.5	78.7	10.5
X	92	61	2.7	3.8	12.4	47.7	47.4	31.4
Area type:								
500,000 and over:								
SMSA only	2,607	152	32.9	4.2	88.4	7.8	91.5	5.3
Mixed	1,333	235	42.1	16.1	74.8	17.0	79.2	13.9
SMSA and mixed:								
250,000-500,000	375	160	10.2	9.4	63.5	22.9	58.8	25.1
100,000-250,000	191	172	11.2	21.9	45.9	37.1	42.6	38.2
50,000-100,000	78	113	3.6	11.5	34.4	44.4	31.0	45.1
Non-SMSA only:								
25,000-50,000	(1)	106	(1)	16.9	.1	53.4	.2	55.2
10,000-25,000	(1)	84	(1)	14.8	(1)	61.7	(1)	63.3
Under 10,000	.0	53	.0	5.1	.0	74.7	.0	76.1

(1) Population does not round to 1 thousand or percent to .1.

Source: (3)

level that find it hard to attract and hold the necessary health personnel and to provide adequate facilities and supporting services. But, there are exceptions. Rochester, Minnesota, (home of the Mayo Clinic) only recently became an SMSA. The University of Virginia Medical School is at Charlottesville, a city of about 39,000. Sayre, Pennsylvania, a town of only 7,500—but the largest in the county—has a hospital and clinic serving 65 doctors representing 28 areas of specialty care. However, such adequate service is rarely achieved over night. The Sayre situation is due to the foresight of a new chief surgeon 60 years ago.

Looking at the percentage of the population living in urbanized areas, what suppositions can be made as to the types of rural problems likely to be encountered? If the percentage is very high, the rest of the population (rural or from small cities) may have difficulty making their views known and in receiving a share of scarce funds which may be allocated instead to majority groups. Even if the urbanized area percentage is low, those who live outside cities may find it difficult to compete for health services on an equal footing with those who live in smaller towns. This could be particularly true with regard to auxilliary services, such as transportation and home health care.

Furthermore, the relative size of the three types of population—urbanized area, other urban, and rural—coupled with the territorial size of the area can suggest whether the rural population is distributed more or less evenly throughout the area. This, in turn, will affect decisions as to the number, type, and location of health personnel and facilities. Where the dispersion is great, more health personnel and more (but smaller) facilities may be needed for points of access and secondary care to compensate for additional travel time incurred both by patient and doctor.

There are 196 CHP areas containing all or a major part of an SMSA (table 6). This number is distributed among large and small SMSA area types by percentage of population living in urbanized areas as follows:

	Large SMSA area type	*Small SMSA area type*
70 percent or more	39	18
50-70 percent	7	37
30-50 percent	3	60
0-30 percent	0	32

Planners would also be interested in knowing in how many of these areas the rural population exceeded half the rest of the population. Reading down the first column, (large SMSA area type) the answer is 32, 7, 3, 0, and down the second column it is 15, 35, 54, 32.

A further breakdown of areas with the greatest concentration of urbanized area population is given

Table 6—Highly urbanized areas: Number of CHP areas with 70 percent or more of their population in urbanized areas, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	Highly urbanized areas						
		Total	And selected other characteristics					
			Over half of rest are rural residents[2]			Under half of rest are rural residents		
			Total	And area is		Total	And area is	
				Under 3,000 sq. mi.	10,000 sq. mi. or over		Under 3,000 sq. mi.	10,000 sq. mi. or over
		Numbers						
All CHP areas	416	57	47	21	4	10	3	3
Regions:								
II	16	7	6	5	0	1	1	0
III	46	7	7	7	0	0	0	0
IV	84	5	4	3	0	1	0	0
V	58	8	8	4	0	0	0	0
VI	57	10	8	1	4	2	0	1
VII	54	3	3	0	0	0	0	0
VIII	45	5	5	1	0	0	0	0
IX	24	10	4	0	0	6	2	2
X	32	2	2	0	0	0	0	0
Area type:								
500,000 and over:								
SMSA only	14	14	11	8	0	3	2	0
Mixed	35	25	21	8	2	4	0	3
SMSA and mixed:								
250,000-500,000	30	12	11	4	2	1	1	0
100,000-250,000	65	5	3	1	0	2	0	0
50,000-100,000	52	1	1	0	0	0	0	0
Non-SMSA only:								
25,000-50,000	81	0	0	0	0	0	0	0
10,000-25,000	90	0	0	0	0	0	0	0
Under 10,000	49	0	0	0	0	0	0	0

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . ." is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (3)

in table 6. It will be noted that 24 of the areas contained under 3,000 square miles. Visual inspection of a map showing SMSA city sprawl reveals that for 12 areas the urbanized area covered at least half of the total CHP area.

The reason for the high concentration of urbanized area population in some areas may be geographic. Several of the big cities, particularly in the West, lie in narrow valleys or arid areas where natural conditions historically limited the territorial expansion of the population. In these areas and in the 23 very small CHP areas with large cities, there maybe some question as to whether those who live in the country should really be included in the rural population. This consideration may render more valid the assumption that metropolitan residence may be equated with living in an SMSA county even though such counties contain 30 percent of the rural population as defined by the Census Bureau, i.e., those living in the country or in places of under 2,500.

In those areas where the total population is highly concentrated, availability of health personnel and facilities should be good. The large number of people to be served should enable hospitals to take advantage of economies of size. It should also facilitate the sharing of services (such as laundry and purchasing of supplies) to reduce costs. For patients living outside the central city, accessibility to medical services should be relatively good. Practitioners located outside the central city should also find their support facilities readily available.

But table 6 also shows seven areas covering 10,000 square miles or more. Thus, a CHP area involving a large SMSA provides no guarantee that planners will not be faced by the same problems that face so many of the CHP areas in the non-SMSA group. Somewhere in that area, people will be far removed from necessary levels of care and even primary access. Many more will be found in the intermediate sized areas, particularly if the large city is in a corner of the planning area. Even quite close to a big city, there may be communities where, due to poverty, age, or lack of transportation, innovations will be required to provide more adequate medical care to the rural population. Where over half of the remaining population lives in towns, it may be easier to provide service that will meet acceptable goals (such as that the majority of the community's population should be within a certain number of minutes of medical help).

Areas with over 200,000 rural residents

Seventeen of the CHP areas, where 70 percent of the population lives in urbanized areas, are also among the 68 with the largest number of rural residents (table 7). The Pittsburgh area had the largest number—934,714. In the eight areas where rural residents live in geographically small CHP areas containing large SMSA's, it is doubtful if many would fall within our earlier definition of those with *rural* health problems, i.e., a sparse and widely dispersed population. On the other hand, those living in the 11 CHP areas covering 10,000 or more square miles may, indeed, be widely dispersed.

Nearly all of the areas with large numbers of rural residents are in regions II-V, the eastern half of the country. Nineteen of the 20 that are also at least half rural are also in the East. Only 16 of the 68 have fewer than 20 percent rural residents. Therefore, in most of these areas, the rural population should have a good chance of making their needs known and receiving their share of the funds available for health-related purposes.

The presence of a population center in all but 11 of the 68 areas with large rural populations suggests that planners will have less difficulty in assuring a full range of services for all residents in these areas. Furthermore, large total population numbers—26 CHP areas have over 500,000 inhabitants—mean that the per capita cost of planning can be relatively low and many of the facilities can be large enough to take full advantage of economies of size.

The More Rural Areas

Hereafter in this report, two classifications will be used to draw attention to the more rural CHP areas: (1) areas that do not contain a large city or have one right on their border, and (2) areas where at least half of the residents are rural (commonly called over half rural). There are 205 CHP areas in the latter category (table 8). Of these, 175 are also non-SMSA only area types. Twenty of the CHP areas included in table 7 are over half rural, but only 11 are non-SMSA only.

To a large city resident, a town of under 10,000 may seem very rural. Many laws providing rural programs specify that towns of up to 10,000 (sometimes larger) are eligible. From the point of view of health care, it is not so much the size of the town itself but the size of the health community it serves; i.e., are there other small towns or people living in the country not too far away who look to the doctors, hospitals, and clinics in the town for their medical care? Many of the more rural CHP areas have but one city of 10,000 or more. Few of these towns are close to each other. In 45 areas, over half of the residents live in towns.

Since 100,000 is generally considered the minimum population base needed to support many types of specialized equipment, residents of many of these more rural communities may have to travel a considerable distance to get the service they need. It will be noted that 73 of the CHP areas (41 of them 50 to 70 percent rural, 32 even more rural, and all non-SMSA in type) do not even have 100,000 inhabitants in the whole CHP area. Hospitals and other facilities in such areas may have difficulty staying open. Planners may have to go to adjacent CHP areas to secure full services for their areas. Among the non-SMSA CHP areas, there are 29 over half rural and 20 under half rural areas covering over 10,000 square miles. They must go far afield to secure those specialized medical services that require an even larger population base in order to have a frequency of use that will keep the medical team at an acceptable level of proficiency and cover the capital and operating costs of the equipment while charging a price patients can afford.

Even providing primary access to medical care will pose problems for many planners. Areas that have larger and more compact health service communities may be able to continue to provide initial and ambulatory care in the traditional manner. Where distances result in above-average travel time for the doctor (either to visit bedridden or hospitalized patients or to meet continuing educational needs), planners may wish to provide more doctors for a given number of people. However, it may be impossible to attract additional doctors. In that case, other methods will have to be devised to alleviate the burden on rural doctors. In some areas, a system of "stand-in's" may permit doctors to get away for a rest or time to attend a course without depriving patients of professional services. Another method would be to provide paraprofessional assistance so physicians can effectively serve a greater number of patients.

Still another alternative would be to set up clinics staffed by part-time or rotating doctors and paraprofessional staff. Doctors would supervise all care and deal with the more complicated cases but leave more routine treatments to physician extenders or nurse practitioners.

A resident doctor is not always the answer to the problem. In many of the remote communities the first contact is now made with a nurse practitioner who handles each case in accordance with instructions (standing orders and protocols) prepared by the supervising physician. The doctor, who may be some distance away, sees the patients only when the medical problem warrants such attention or when the patient desires it. In very remote areas, the physician extender, in addition to getting additional training, will sometimes be provided with specialized communication and television equipment that enables a doctor to diagnose the problem and order a course of treatment.

Of the 220 non-SMSA only CHP areas, 122 were in "funded" or developing status with paid staffs. Part of the job of such a staff is to advise communities as to the options open to them and to give them the technical assistance they need in their efforts to get primary care and to establish linkages with the hospitals, nursing homes, and specialists required for other types of care. However, as of May 1973, there were 56 potential CHP areas—43 of them non-SMSA only—that did not have even a council to assist in this task.

Table 7—Number of CHP areas with over 200,000 rural residents, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	CHPs with over 200,000 rural residents[2]									
		Total	CHP formation status			And selected other characteristics					
			"Funded"	Developing	Undeveloped	Have staff	Land area over 10,000 sq. mi.[2]	Urbanized area			Over one-half rural[2]
								None	Over 70%[2]	Over 500,000[2]	
						Number					
ALL CHP areas	416	68	55	10	3	58	11	10	17	26	20
Regions:											
II	16	8	5	3	0	5	0	0	2	4	2
III	46	9	7	2	0	8	1	2	3	5	3
IV	84	20	16	1	3	17	1	4	1	4	8
V	58	20	18	2	0	17	5	4	5	7	6
VI	57	5	3	2	0	5	2	0	2	2	1
VII	54	1	1	0	0	1	0	0	1	1	0
VIII	45	0	0	0	0	0	0	0	0	0	0
IX	24	4	4	0	0	4	2	0	2	2	0
X	32	1	1	0	0	1	0	0	1	1	0
Area type:											
500,000 and over:											
SMSA only	14	5	4	1	0	4	0	0	5	5	0
Mixed	35	19	18	1	0	17	3	0	12	19	0
SMSA and mixed:											
250,000-500,000	30	9	7	1	1	7	1	0	0	2	0
100,000-250,000	65	19	14	3	2	15	3	0	0	0	5
50,000-100,000	52	5	3	2	0	5	1	0	0	0	4
Non-SMSA only:											
25,000-50,000	81	8	6	2	0	7	2	7	0	0	8
10,000-25,000	90	3	3	0	0	3	1	3	0	0	3
Under 10,000	49	0	0	0	0	0	0	0	0	0	0

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (3)

Table 8—Highly rural areas: Number of CHP areas that are over half rural, with selected other characteristics, 1970[1]

Regions and area types	All CHP areas	Highly rural CHPs																
		Total	Percent rural		CHP formation status						And selected other characteristics							
					"Funded"		Developing		Undeveloped		Have staff		10,000 and over sq. mi.		Population under 100,000		Density under 25 per sq. mi.	
			50-70%	70% and over	50-70%	70% and over	50-70%	70% and over	50-70%	70% and over	50-70%	70% and over	50-70%	70% and over	50-70%	70% and over	50-70%	70% and over
	Number																	
All CHP areas	416	205	142	63	57	21	61	27	24	15	90	39	24	8	41	32	49	23
Regions:																		
II	16	4	4	0	2	0	1	0	1	0	2	0	0	0	0	0	0	0
III	46	30	13	17	8	6	4	6	1	5	12	10	1	0	1	6	0	1
IV	84	51	32	19	8	10	15	6	9	3	23	17	1	0	0	[illegible]	0	1
V	58	25	22	3	14	2	2	[illegible]	6	0	16	3	4	2	1	0	2	0
VI	57	17	16	1	10	1	5	0	1	0	14	1	3	0	2	0	4	1
VII	54	31	21	10	3	0	17	7	1	3	8	3	4	1	11	8	13	8
VIII	45	26	16	10	5	0	8	6	3	4	6	4	7	4	13	10	16	10
IX	24	6	5	1	3	1	1	[illegible]	1	0	2	0	2	0	3	1	4	0
X	32	15	13	2	4	1	8	1	1	0	7	1	2	1	10	2	10	2
Area type:																		
500,000 and over:																		
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed	35	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
SMSA and mixed:																		
250,000-500,000	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	9	9	0	8	0	0	0	1	0	8	0	1	0	0	0	1	0
50,000-100,000	52	20	20	0	13	0	5	0	2	0	18	0	2	0	0	0	1	0
Non-SMSA only:																		
25,000-50,000	81	54	50	4	22	3	21	0	7	1	33	3	7	1	2	1	9	2
10,000-25,000	90	75	47	28	10	9	26	13	11	6	25	21	10	4	25	9	27	6
Under 10,000	49	46	15	31	4	9	8	14	3	8	5	15	4	3	14	22	11	15

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded.

Sources: (1) (3)

MINORITIES

When an area has either a large number or high proportion of minority residents, the council, staff, and advisory committees may face special health planning problems. For instance, sickle cell anemia particularly affects Blacks. Therefore, in communities with many Blacks, the health plan might call for an educational and screening program, coupled with treatment and counseling for those with the disease and their families. However, while some health problems are associated with certain ethnic groups, health is more often related to living conditions.

While many of the legal barriers to access to health care have been removed in recent years, attitudes and habits ingrained over a lifetime are slower to change. Special efforts may be needed by the council and staff to (1) develop meaningful participation by minority groups in the planning process; (2) overcome any educational gaps that may result in minority groups not knowing how and when to use the health services provided, and (3) change personal attitudes and organizational procedures to encourage minority patients to utilize the services provided once they become aware of the need for such service.

Furthermore, a long history of low incomes and the concentration of minorities in areas of substandard housing—with the resultant effects of malnutrition, poor hygiene, and a past history of medical neglect—may necessitate not only a high priority for programs to improve the living environment but also a greater than average medical staff per 1,000 population and a longer than average hospital stay.

Over a quarter of the study area's minority residents live in region IV (table 9). This region also has the highest proportion of its population belonging to minority groups. While region V has the second largest number of minority residents, they are but a small fraction of the total population, with very few living in the more rural areas. On the other hand, region IX has relatively few minority inhabitants, but the unweighted average for region IX CHP areas is 19.3 percent—principally due to the very high percentage of minorities in Hawaiian areas.

There are 65 CHP areas where the percentage of minority residents deviates widely from the all-area average (table 10). Forty of them are in region IV; 10 or less are in regions III, VI, and IX; none are in the other regions.

Fifty-seven percent of all minority group members are in the CHP areas with the largest population centers. While these areas have a slightly higher proportion of minorities, there is little difference between the averages for the various area types. Areas with a quarter or more of their residents belonging to minority groups (about twice the national average) are to be found in all area types. However, it is noticeable that 39 of the 65 are also half rural and 33 of them are non-SMSA type areas.

The concentration of large numbers of minority residents consists preponderantly of Blacks or, in region IX (and to a lesser extent in region X) of large numbers of Asians and Polynesians. However,

Table 9—Minority population: Average characteristics of CHP areas, 1970[1]

Regions and area types	Average Size	Share of all CHP areas	Share of each area: Weighted	Share of each area: Unweighted
	Number	*Percent*	*Percent*	*Percent*
All CHP areas	60,181	100.00	13.1	11.5
Regions:				
II	201,338	12.9	12.6	7.3
III	73,533	13.5	14.5	14.0
IV	82,127	27.6	21.9	24.2
V	70,583	16.4	9.3	4.7
VI	58,341	13.3	16.4	14.3
VII	14,860	3.2	6.7	2.9
VIII	4,746	.9	4.0	3.9
IX	119,435	11.4	12.5	19.3
X	7,223	.9	3.7	2.7
Area type:				
500,000 and over:				
SMSA only	466,269	26.1	16.4	13.7
Mixed	223,489	31.2	13.3	12.6
SMSA and mixed:				
250,000-500,000	73,068	8.8	11.4	12.0
100,000-250,000	49,586	12.9	11.0	11.7
50,000-100,000	32,705	6.8	13.1	12.0
Non-SMSA only:				
25,000-50,000	22,069	7.1	11.5	11.1
10,000-25,000	15,648	5.6	11.8	10.2
Under 10,000	7,629	1.5	10.9	11.6

[1] Minority population as used in this report refers to "Negroes" and "members of other races" as defined by the Bureau of the Census.

Source: (3)

Table 10—Number of CHP areas with 25 percent or more minority residents, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	CHP's with 25 percent or more minority residents							
		Total	CHP formation status			And population			
			"Funded"	Developing	Undeveloped	Total under 100,000	No urbanized area	Over ½ rural[2]	Minority over 100,000[2]
					Number				
All CHP areas	416	65	26	24	15	9	33	39	25
Regions:									
II	16	0	0	0	0	0	0	0	0
III	46	10	3	5	2	4	5	5	3
IV	84	40	13	15	12	1	22	26	16
V	58	0	0	0	0	0	0	0	0
VI	57	10	6	3	1	1	2	4	5
VII	54	0	0	0	0	0	0	0	0
VIII	45	0	0	0	0	0	0	0	0
IX	24	5	4	1	0	3	4	4	1
X	32	0	0	0	0	0	0	0	0
Area type:									
500,000 and over:									
SMSA only	14	1	0	1	0	0	0	0	1
Mixed	35	4	4	0	0	0	0	0	4
SMSA and mixed:									
250,000-500,000	30	4	4	0	0	0	0	0	3
100,000-250,000	65	13	6	4	3	0	0	0	9
50,000-100,000	52	10	6	4	0	0	0	6	3
Non-SMSA only:									
25,000-50,000	81	12	2	6	4	1	12	12	5
10,000-25,000	90	12	2	4	6	2	12	12	0
Under 10,000	49	9	2	5	2	6	9	9	0

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

there is one small minority group that is important for planning purposes out of proportion to its number: American Indians. In 1970, no State had as many as 100,000. Yet, in New Mexico, Montana, North and South Dakota, Wyoming, and Arizona, Indians constituted over half of the minority population and in Minnesota, Oklahoma, Utah, Idaho, Oregon, and Washington, over a fifth. Because of their concentration on reservations they are also significant groups for CHP areas in North Carolina, Michigan, Nebraska, California, and Nevada. The Indian Health Service and certain Federal health programs are charged with health care of the Indians and many areas have manpower and facilities exclusively for their use. This provides not only special resources and sources of funds, but calls for close cooperation with other agencies in planning for the overall health of an area.

AGE GROUPS

The age distribution of residents of a CHP area is of primary importance to a health planner for at least three reasons: (1) There is a close association between age and ill health; (2) different ages require different types of service, and (3) the age distribution will affect the method of financing health programs and the ability of the community and the individual to pay for such programs and service.

In recent years, the National Center for Health Statistics has conducted a series of national health interviews showing age patterns for acute and chronic conditions. The number of acute conditions reported per 100 persons per year for 1969-70 declined steadily from 347 for children under 6, to 193 for those 17 to 44, to 123 for those over 45. In each age group, farm residents of non-SMSA counties reported far fewer acute conditions than SMSA residents. Nonfarm residents reported the lowest rate of those under 6, the highest for those over 45, and only a slightly lower rate than the SMSA residents for the other age groups. With 40.9 percent of their population under 20, region VII areas had the highest average for the young, with region IV next, at 39.4 percent (table 11). By area type, the largest SMSA areas had the smallest proportion of young people, but otherwise there was no discernible pattern.

The percentage of the population reporting a limitation of activity due to chronic health conditions moved in the opposite direction for the Nation as a whole. It rose sharply from 2.7 percent for those under 17 to 7.6 percent for those 17 to 44, to 19.5 percent for those beyond middle age, and then more than doubled again to 42.3 percent for those 65 and over. Under age 45, residence made very little difference, though SMSA counties had a slightly lower percentage; after age 65, the non-SMSA percentages of those with limitations were higher—about 40 percent in SMSA counties versus 46 percent non-SMSA ones. Areas of region VII had by far the highest percentages of old people and region IX the lowest. By area type, the percentage of those age 65 and over increased almost steadily as the size of the largest city declined.

The Young

When an area has a very young population, planners can expect above-average demand for certain types of specialities and services—pediatricians, obstetricians, and services associated with acute illnesses, both ambulatory and requiring inpatient care. The national health survey for 1969 showed that 75 percent of physician visits were for diagnosis and treatment, with slightly more visits for acute conditions than chronic conditions. An additional 8 percent were for pre- and post-natal care or immunization and vaccination—both closely related to child and maternal care.

The unweighted average percentage of the population under 20 is 38.7 percent. For most of the variables discussed in this report, there was a great deal of difference in numbers and percentages from area to area. Not only did the averages differ from region to region or area type to area type, but they also differed within a region or area type where there could be a wide spread between the largest and smallest figures. This is not the case for the age characteristic. For the young, there are only 53 CHP areas where the percentage is 42 or greater (table 12). However, 35 of these had no city larger than 50,000 and 30 were over half rural. Some may have difficulty providing adequate services for the young—either because they cover over 10,000 square miles, or because they have fewer than 100,000 inhabitants. A few suffer from both problems.

However, some of these 53 areas may be on the list because they contain large institutions (colleges and military installations) with many under age 20. These institutions may be a resource for the area, either because they provide their own medical services or because they have expertise that the planning staff and medical institutions need.

There are 65 CHP areas with relatively few young people, many of them in regions VI and VII. Twenty-nine are over half rural and 39 are non-SMSA only. In the 43 CHP areas also having an unusually high proportion of the aged, there will be a particular need for planners to project the future age distribution. They may want to consider adapting excess capacity for child and maternal care to care for the aged.

The Aged

On the average, 10.7 percent of the residents of the CHP areas were age 65 or over. Again, there is a good deal of uniformity from area to area, and the amount of the deviation from the average is relatively small. Fifty-nine of the CHP areas had less than 8 percent of their residents in this age category (table 13). This would indicate that the demand for types of care needed by older people would be relatively small. However, a small percentage coupled with a small population may mean that the aged are so few that it is difficult to economically provide the services they need. Thirteen of the 59 areas are half rural and 19 are non-SMSA only.

Table 11—Age groups: Average characteristics of CHP areas, 1970

Regions and area types	Population			Share of each area			Age ratios		
	Under 20	20-64	Over 64	Under 20	20-64	Over 64	Under 20 / 20-64	Over 64 / 20-64	Dependents / 20-24
	Thousands	*Thousands*	*Thousands*	*Percent*[1]	*Percent*[1]	*Percent*[1]	*Percent*[1]	*Percent*[1]	*Percent*[1]
All CHP areas									
Unweighted	174	240	45	38.7	50.6	10.7	76.8	21.2	98.0
Weighted				37.9	52.2	9.8	72.6	18.8	91.4
Regions:									
II	568	859	167	37.5	52.2	10.3	72.2	19.7	91.9
III	187	271	49	37.5	52.4	10.2	71.7	19.5	91.2
IV	143	193	38	39.4	50.7	9.8	78.1	19.5	97.6
V	295	389	73	39.1	50.3	10.6	77.8	21.2	99.0
VI	141	182	33	39.2	50.1	10.7	78.7	21.3	100.0
VII	84	113	27	36.4	49.5	14.1	73.7	28.7	102.4
VII	49	60	11	40.9	49.0	10.1	83.6	20.7	104.3
IX	356	517	85	39.1	52.3	8.7	75.0	16.6	91.6
X	73	101	19	38.4	51.1	10.5	75.2	20.6	95.8
Area Type:									
500,000 and over:									
SMSA only	1,023	1,558	269	37.3	53.7	9.0	69.7	16.7	86.4
Mixed	642	888	153	38.4	52.5	9.1	73.2	17.4	90.6
SMSA and mixed:									
250,000-500,000	244	328	66	39.0	51.5	9.6	75.9	18.7	94.6
100,000-250,000	174	232	43	38.9	51.6	9.6	75.5	18.6	94.1
50,000-100,000	98	126	27	38.7	50.2	11.0	77.4	22.0	99.5
Non-SMSA only:									
25,000-50,000	75	97	21	39.0	50.2	10.8	78.0	21.6	99.6
10,000-25,000	51	66	15	38.5	49.8	11.6	77.7	23.4	101.1
Under 10,000	27	34	9	38.9	49.0	12.1	79.6	24.9	104.5

[1] Percentage data for regions and area type are unweighted.

Source: (3)

Table 12—The young—under 20: Number of CHP areas showing extreme deviations from the average, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	CHPs with 42 percent and over population under 20 years of age									
		Total	CHP formation status			And selected other characteristics					
			"Funded"	Developing	Undeveloped	Land area over 10,000 sq. mi.[2]	Population				
							Total under 100,000	Urbanized areas		Over ¼ rural[2]	Over ¼ minority[2]
								None	Over 70%[2]		
						Number					
All CHP areas	416	53	16	21	16	19	15	35	5	30	18
Regions:											
II	16	0	0	0	0	0	0	0	0	0	0
III	46	1	0	1	0	0	0	1	0	1	1
IV	84	14	4	6	4	1	0	11	0	13	13
V	58	3	3	0	0	1	0	1	0	2	0
VI	57	15	5	6	4	8	3	6	3	3	3
VII	54	1	0	1	0	0	0	0	0	0	0
VIII	45	13	4	4	5	4	9	10	2	8	0
IX	24	3	0	1	2	3	1	3	0	2	1
X	32	3	0	2	1	2	2	3	0	1	0
Area type:											
500,000 and over:											
SMSA only	14	0	0	0	0	0	0	0	0	0	0
Mixed	35	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:											
250,000-500,000	30	5	4	1	0	2	0	0	4	0	0
100,000-250,000	65	5	3	1	1	1	0	0	0	1	2
50,000-100,000	52	8	3	4	1	1	1	0	1	3	4
Non-SMSA only:											
25,000-50,000	81	12	3	4	5	8	1	12	0	7	4
10,000-25,000	90	12	1	7	4	3	6	12	0	10	6
Under 10,000	49	11	2	4	5	4	7	11	0	9	2

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (3)

Continued

Table 12—The young—under 20: Number of CHP areas showing extreme deviations from the average, with selected other characteristics, 1970—Continued

Regions and area types	CHPs with less than 36 percent population under 20 years of age								
	Total	CHP formation status			And selected other characteristics				
					Population			Age groups	
		"Funded"	Developing	Undeveloped	Total under 100,000	No urbanized area	Over ½ rural[1]	Over 100,000 under 20[2]	Over 13.5%[2] over 64
					Number				
All CHP areas	65	28	31	6	15	39	29	17	43
Regions:									
II	4	3	0	1	0	0	0	4	0
III	7	6	1	0	0	3	3	2	1
IV	7	5	2	0	0	3	3	4	6
V	3	1	2	0	0	1	1	2	2
VI	16	6	10	0	1	10	8	1	12
VII	22	3	14	5	12	19	13	1	21
VIII	0	0	0	0	0	0	0	0	0
IX	2	2	0	0	0	0	0	2	0
X	4	2	2	0	2	3	1	1	1
Area type:									
500,000 and over:									
SMSA only	5	4	0	1	0	0	0	5	0
Mixed	3	3	0	0	0	0	0	3	1
SMSA and mixed:									
250,000-500,000	3	3	0	0	0	0	0	3	2
100,000-250,000	6	4	2	0	0	0	0	3	4
50,000-100,000	9	2	7	0	0	0	3	2	5
Non-SMSA only:									
25,000-50,000	15	7	8	0	0	15	7	0	10
10,000-25,000	15	3	9	3	8	15	10	1	13
Under 10,000	9	2	5	2	7	9	9	0	8

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (3)

Table 13—The aged—over 64: Number of CHP areas showing extreme deviations from the average, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	CHPs with 13.5 percent or more population over 64 years old								CHPs with less than 8 percent population over 64 years old								
		Total				And selected other characteristics				Total				And selected other characteristics				
		Total	CHP formation status			Land area over 10,000 sq. mi.[2]	Population			Total	CHP formation status			Land area over 10,000 sq. mi.[2]	Population			
			"Funded"	Developing	Undeveloped		Total under 100,000	No urbanized area	Over ½ rural[2]		"Funded"	Developing	Undeveloped		Over 70% urbanized area[2]	Over ½ rural[2]	Over ¼ minority[2]	Over 42% under 20[2]
		Number																
All CHP areas	416	67	21	37	9	8	24	50	47	59	27	21	11	15	19	13	23	27
Regions:																		
II	16	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0
III	46	2	1	0	1	0	1	2	2	6	3	3	0	0	4	1	5	1
IV	84	6	4	2	0	0	0	3	2	16	7	7	2	0	2	6	13	6
V	58	5	2	2	1	3	1	3	4	3	3	0	0	0	0	0	0	1
VI	57	16	8	8	0	1	0	7	9	15	4	7	4	10	5	2	3	10
VII	54	35	6	24	5	4	19	32	27	0	0	0	0	0	0	0	0	0
VIII	45	2	0	0	2	0	2	2	2	8	4	2	2	0	3	2	0	5
IX	24	0	0	0	0	0	0	0	0	8	5	1	2	4	4	2	2	3
X	32	1	0	1	0	0	1	1	1	2	0	1	1	1	0	0	0	1
Area types:																		
500,000 and over:																		
SMSA only	14	0	0	0	0	0	0	0	0	3	2	1	0	0	3	0	1	0
Mixed	35	1	1	0	0	0	0	0	0	7	7	0	0	2	6	0	1	0
SMSA and mixed:																		
250,000-500,000	30	2	2	0	0	0	0	0	0	9	8	1	0	2	7	0	2	5
100,000-250,000	65	5	3	2	0	1	0	0	1	16	7	6	3	2	3	0	9	4
50,000-100,000	52	9	3	6	0	1	0	0	5	5	2	2	1	2	0	0	1	2
Non-SMSA only:																		
25,000-50,000	81	14	7	7	0	1	0	14	9	8	0	5	3	4	0	4	3	6
10,000-25,000	90	22	3	14	5	5	13	22	18	5	0	3	2	2	0	5	4	5
Under 10,000	49	14	2	8	4	0	11	14	14	6	1	3	2	1	0	4	2	5

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . ." is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (3)

There are 67 CHP areas—50 of them non-SMSA only—where the aged were 13.5 percent or more of the population. In these areas, there will be an above average need for doctors and hospital beds for diseases that are more prevalent among the aged. Since diseases of the aged are largely chronic, there will be a relatively high demand for nursing homes, for facilities providing ambulatory care, and for home health services such as a visiting nurse. In addition to these primarily health care services, there may be a high priority need for auxilliary services (such as transportation to get the aged to and from the clinic or doctor). Hot meals or home aid services to do the marketing or repair the house may be necessary to maintain good health while the aged continue to live at home. Such services may have to be planned for as part of comprehensive health planning or in close cooperation with non-health programs for the aged.

Age and the Ability to Pay

Some people continue working full time into their seventies. But most retire by 65 and the retirement age is steadily dropping. Not only does income then drop sharply, but the retirees become very vulnerable to rising prices, whether due to general inflation or increasing medical costs. On the other hand, medicare and other programs for the aged help assure basic minimum health costs will be met when aged individuals are ill. Furthermore, if plans are well drawn and the CHP agency can raise matching funds, planners may find it easier to obtain Federal assistance for programs related to the aged than for many other types of health care improvements.

While some of those under age 20 are employed, few earn enough to pay for the full cost of the goods and services they consume. The years 20 to 64 are the most productive years when men and many women work to produce the goods and services consumed not only by themselves and their families but by others as well. Thus, provided there is no maladjustment in the local economy, a CHP area with a high proportion of its population in the working years is in a better position to support improvements in the health care delivery system than other areas. One way of looking at this is to study the ratio of dependents (the young and the old) to those 20 to 64 years of age. In regions VIII, VII, and VI (listed in the order of the size of the ratios), the number of dependents exceed those in the productive years. In region VIII, this is due to the high number of young people. In region VII, it is due to the high number of older people. In region VI, it is due to the high proportion of both young and old. On the average, CHP areas with large cities have relatively few dependents; areas with cities of 25,000-100,000 have barely fewer dependents than producers, but those without even a town of 10,000 have a very high proportion of dependents.

ABILITY OF AREA TO FINANCE HEALTH SERVICES

An even better way to evaluate the ability of an area to pay for improvements to health is to look at estimates of income and poverty. It will be noted in table 14 that the most populous regions have the highest per capita incomes and, therefore, have an even larger share of aggregate income. Average per capita income declines as area type becomes more rural, though areas with very small SMSA cities and large non-SMSA cities have about the same per capita incomes. Nearly 60 percent of aggregate income is received by inhabitants of the 49 areas with the largest urbanized areas. This explains the great difference between the weighted and unweighted averages.

When numbers of poor people rather than numbers of dollars are considered, regions IV and V reverse places, with over a quarter of the poor being found in region IV. By area type, the pattern for the average percentage of poor is the reverse of the pattern for per capita income. This, taken in combination with the pattern for variables discussed in this report, suggests that areas with the least resources available often have the greatest need to improve health and health services.

Cost is one of the biggest problems facing a comprehensive health planning council and staff. Not only do they have to ask what measures can be recommended to contain costs; at the community level, they also have to ask the following: How much health care can the area afford? Where is the money coming from to cover capital expenses and start-up costs? Can matching funds be raised to obtain federal funding? Can a desirable service be made self-supporting? At the personal level, they must ask these questions: How many people can pay for the services they need? How will they do this—directly by payments to doctors or hospitals or indirectly through premiums paid to insurance companies or Social Security (Medicare) or through prepayment made to health maintenance organizations?

Data presented here provide only a clue; to obtain more complete answers, planners need to know the wealth of a community, the size of its tax base, and the extent of alternative demands on its resources. Some knowledge is needed of the extent of insurance, Medicare and Medicaid coverage, and of the extent to which free services are now supported by public or private groups. Such support may come from direct contributions to cover the capital or operating costs of facilities or as a byproduct of training and research projects that help cover patient costs.

Large populations require large health care establishments. Often, sheer size has its advantages; economies are associated with the size of a facility or practice. Large operations often offer greater opportunities for cost cutting through improving efficiency. Additional funds for high priority jobs can often be squeezed out of large budgets by cutting less essential programs. If per capita incomes are high, it is easier to get contributions from businesses and individuals.

Every region has at least one high income CHP area, and regions II, V, and IX have eight or more

Table 14—Financial ability—money income and poverty: Average characteristics of CHP areas, 1970

Regions and area types	Average aggregate money income[1]	Per capita income		Persons below poverty line[2]			
		Weighted	Un-weighted	Average	Percent		
					CHP area total	Within each CHP area	
						Weighted	Un-weighted
	Mil. dol.	*Dollars*	*Dollars*	*Number*	*Percent*	*Percent*	*Percent*
All CHP areas	1,434	3,122	2,627	62,636	100.0	13.6	17.7
Regions:							
II	5,828	3,657	3,399	160,791	9.9	10.1	9.4
III	1,586	3,127	2,614	62,029	11.0	12.2	17.2
IV	959	2,562	2,267	80,175	25.8	21.4	25.9
V	2,477	3,272	2,927	73,827	16.4	9.8	11.1
VI	939	2,637	2,367	73,244	16.0	20.6	23.8
VII	655	2,938	2,620	28,607	5.9	12.8	15.7
VIII	339	2,826	2,552	15,622	2.7	13.0	15.5
IX	3,418	3,570	3,091	105,382	9.7	11.0	13.0
X	625	3,218	2,890	20,688	2.5	10.7	12.6
Area type:							
500,000 and over:							
SMSA only	10,852	3,808	3,776	290,768	15.6	10.2	9.1
Mixed	5,706	3,390	3,255	179,051	24.1	10.6	11.5
SMSA and mixed:							
250,000-500,000	1,948	3,052	3,041	78,262	9.0	12.3	12.5
100,000-250,000	1,236	2,754	2,700	68,233	17.0	15.2	16.0
50,000-100,000	621	2,481	2,484	50,090	10.0	20.0	19.9
Non-SMSA only:							
25,000-50,000	471	2,455	2,478	36,593	11.4	19.1	18.8
10,000-25,000	312	2,346	2,408	28,346	9.8	21.4	20.3
Under 10,000	155	2,217	2,299	16,654	3.1	23.7	21.6

[1] This is the CHP area average of all money income of all persons 14 and over whether they were in families, unrelated individuals, students in dormitories, servicemen in barracks, or inmates in institutions. [2] Census did not compute a poverty status for students in dormitories, servicemen in barracks, or inmates of institutions. The percentage is taken of total population.

Source: (3)

(table 15). Only one of the 41 is a non-SMSA only area type; only six were not "funded" in May of 1973.

By way of contrast, none of the almost equal number of CHP areas with per capita incomes of under $2,000 have an urbanized area larger than 100,000. Only 19 are "funded," while 12 have no councils. Yet most of these areas, because of their dispersed populations (38 are over half rural), will find it costs more to provide the same quantity and quality of care. Additional expenditures will be needed to overcome travel barriers.

In addition to the 43 areas where per capita income is under $2,000, data for table 16 indicate there are 31 others where a fourth of the population is below the poverty line (defined as the minimum amount a family should spend for food in relation to its total income, depending on the size of the family, its residence and—in the case of one- and two-person families—the age and sex of the head). Medicaid will help, but in these 74 areas, the problem of how individuals and communities are going to pay for medical care will be particularly acute. Most of these areas are non-SMSA only or over half rural. Over half have a high percentage of minority groups, and 24 have an unusually high percentage of young people. Surprisingly, in view of the close association between poverty and old age, very few of these low-income areas have high percentages of aged people. Actually, such areas are about equally divided above and below the poverty average.

No one knows the exact extent and nature of health insurance coverage in rural areas. But it is believed to be below average because of the high proportion of self-employed and small enterprises in rural areas. Neither is conducive to providing opportunities for group insurance. Therefore, under a national health insurance program, not only would the benefits be potentially greater in rural areas but the stresses would also be greater there. Current analyses of health care costs emphasize the need to shift treatment patterns from inpatient hospital care to the less expensive ambulatory care. Most national health insurance benefit packages include this type of coverage. It is in this area that the greatest increase in demand is likely to come, since relatively few policies now give this type of coverage. It is this kind of care that rural areas often find most difficult to provide.

INFANT BIRTHS AND DEATHS

Socioeconomic vs. Health-related Data

Up to now the characteristics considered can only indirectly be influenced by health planning. Healthy persons may be able to earn more money

Table 15—Per capita money income: Number of CHP areas showing extreme deviations from the average, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	CHPs with $3,250 and over per capita income						CHPs with under $2,000 per capita income									
		Total	CHP formation status			And population		Total	CHP formation status			And population					
			"Funded"	Developing	Undeveloped	Over 70% urbanized area[2]	Over 10% poor[2]		"Funded"	Developing	Undeveloped	Total under 100,000	No urbanized area	Over ½ rural[2]	Over ¼ minority[2]	Over 42% under 20[2]	Over 40% poor[2]
								Number									
All CHP areas	416	41	35	4	2	33	13	43	19	12	12	9	36	38	22	17	11
Regions:																	
II	16	8	5	2	1	6	1	0	0	0	0	0	0	0	0	0	0
III	46	5	4	1	0	5	3	5	3	2	0	2	5	5	2	0	0
IV	84	3	3	0	0	2	3	24	9	6	9	1	23	24	16	10	8
V	58	10	9	0	1	7	0	0	0	0	0	0	0	0	0	0	0
VI	57	1	1	0	0	1	1	10	6	3	1	3	4	5	4	6	3
VII	54	2	2	0	0	2	1	3	1	0	2	2	3	3	0	0	0
VIII	45	2	1	1	0	1	1	1	0	1	0	1	1	1	0	1	0
IX	24	8	8	0	0	7	3	0	0	0	0	0	0	0	0	0	0
X	32	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Area type:																	
500,000 and over:																	
SMSA only	14	13	11	1	1	13	4	0	0	0	0	0	0	0	0	0	0
Mixed:	35	18	17	1	0	16	6	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:																	
250,000-500,000	30	6	4	1	1	3	2	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0
50,000-100,000	52	1	1	0	0	0	0	7	5	2	0	1	0	3	4	4	2
Non-SMSA only:																	
25,000-50,000	81	0	0	0	0	0	0	7	1	2	4	0	7	7	6	2	2
10,000-25,000	90	0	0	0	0	0	0	17	6	4	7	3	17	16	9	8	5
Under 10,000	49	1	0	1	0	0	1	12	7	4	1	5	12	12	3	3	2

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Source: (3)

Table 16—High poverty areas: Number of CHP areas with 25 percent or more of their residents below the poverty line, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	High poverty CHPs											
		Total	CHP formation status			And selected other characteristics							
							Population					Financial ability	
			"Funded"	Developing	Undeveloped	Land area over 10,000 sq. mi.[2]	Total under 100,000	No urbanized area	Over ½ rural[2]	Over ¼ minority[2]	Over 42% under 20[2]	Per capita income under $2,000	Number of poor over 75,000[2]
							Number						
All CHP areas	416	74	32	27	15	8	13	51	57	40	24	43	20
Regions:													
I	16	0	0	0	0	0	0	0	0	0	0	0	0
II	46	9	6	2	1	0	4	8	9	3	0	5	0
III	84	38	12	15	11	2	3	29	32	27	13	24	11
IV	58	0	0	0	0	0	0	0	0	0	0	0	0
V	57	22	13	8	1	5	3	9	11	9	9	10	9
VI	54	3	1	0	2	0	2	3	3	0	0	3	0
VII	45	1	0	1	0	0	1	1	1	0	1	1	0
VIII	24	1	0	1	0	1	0	1	1	1	1	0	0
IX	32	0	0	0	0	0	0	0	0	0	0	0	0
X													
Area type:													
500,000 and over:													
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0
Mixed:	35	0	0	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:													
250,000-500,000	30	0	0	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	8	3	3	2	1	0	0	1	6	2	0	7
50,000-100,000	52	14	9	5	0	2	1	0	8	10	6	7	6
Non-SMSA only:													
25,000-50,000	81	15	4	7	4	2	0	15	12	9	5	7	6
10,000-25,000	90	21	8	6	7	3	4	20	20	10	8	17	1
Under 10,000	49	16	8	6	2	0	8	16	16	5	3	12	0

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than, the value listed."

Sources: (1) (3)

and employers may be attracted to communities with good health services, thereby causing changes in per capita income, age distribution, and even residence.

On the other hand, it is the responsibility of health planners (council and staff) to try to stimulate changes in the variables about to be discussed—infant mortality, poor housing and lack of phones. As a result of their efforts, improvements in the quality, the quantity, or the accessibility of health care services may cut infant mortality rates. Perhaps, equally important with the improvement in service is the improvement in the use of pre- and post-natal care resulting from the consumer health educational programs that the council helped get started.

Malnutrition and unsanitary housing are closely associated with high infant mortality. Lack of access to phones is a barrier to obtaining health care. As expressed by Congress, it is the goal of the comprehensive health planning program to "assure the highest level of health attainable for every person in an environment which contributes to healthful individual and family living." One measure of the success of CHP agencies and the programs they generate will be the extent to which environmental hazards to health are reduced or indices such as infant mortality rates are improved.

Infant Mortality Rates

The infant death rate is frequently cited as one of the best indices of an area's health. To a large extent, this is probably because it is one of the few readily available indices for small geographic areas. The infant mortality rate is measured by a ratio of deaths of children under 1 year of age to total live births. The neonatal death rate is the rate of deaths of infants under 28 days to total live births. Data on both births and deaths are collected annually by the same agency, so that both numerator and divisor are readily available for the same time frame and for the same geographic locality. Other mortality statistics also have to be converted to rates, but using population figures as the divisor. Unfortunately, accurate population estimates are not always available for small areas between census enumerations.

Data presented in tables 17 and 18 can be used in two ways. One is to look at the figures to grasp the magnitude of the problems involved. How many births and deaths are there? Therefore, what is the probable need for hospital beds, obstetricians, and pediatricians? Where is this need high in relation to total population? Where should child and maternal care be given high priority?

The greatest numbers of births and deaths are found in CHP areas with the greatest populations: Those in regions II, IX, and V (in order of average area births) and in the areas with the biggest urbanized area populations. Relatively, the regions with the greatest problems are IV, III, and VI, in that order. By area type, infant mortality rates fall into three distinct groups. CHP areas with large urbanized areas of 250,000 or more population hover around 22 infant deaths per 1,000 live births; smaller urbanized area CHPs are around 23 per

Table 17—Infant births and deaths: Average characteristics, annual average 1966-68

Regions and area types	Births	Deaths under 1 year	Deaths under 28 days	Deaths per 1,000 births: Under 1 year, Weighted	Under 1 year, Unweighted	Under 28 days, Weighted	Under 28 days, Unweighted
	Number	*Number*	*Number*	*Rate*	*Rate*	*Rate*	*Rate*
All CHP areas	8,022	183	134	22.8	23.4	16.7	16.7
Regions:							
II	26,826	586	447	21.8	21.0	16.7	16.1
III	8,632	199	151	23.0	24.3	17.5	17.7
IV	6,686	181	122	27.1	28.2	18.2	18.4
V	13,474	293	221	21.8	21.1	16.4	16.0
VI	6,655	161	114	24.1	24.0	17.1	16.8
VII	3,668	77	59	21.0	20.5	16.0	15.6
VIII	2,141	45	34	20.9	22.1	15.8	16.5
IX	16,436	332	243	20.2	21.7	14.8	15.4
X	3,115	62	45	20.0	21.6	14.3	15.6
Area type:							
500,000 and over:							
SMSA only	49,154	1,071	811	21.8	21.5	16.5	16.3
Mixed	29,262	653	488	22.3	22.0	16.7	16.3
SMSA and mixed:							
250,000-500,000	11,181	245	183	22.0	22.0	16.3	16.3
100,000-250,000	7,946	184	133	23.2	23.3	16.8	16.9
50,000-100,000	4,517	106	74	23.4	22.9	16.5	16.4
Non-SMSA only:							
25,000-50,000	3,383	82	57	24.4	23.8	17.0	16.9
10,000-25,000	2,285	58	39	25.2	24.3	17.2	16.9
Under 10,000	1,193	30	20	24.9	23.9	17.1	16.8

Source: (2)

Table 18—High infant mortality areas: Number of CHP areas with 28 or more infant deaths per 1,000 live births, with selected other characteristics

Regions and area types	All CHP areas[1]	CHPs with high infant mortality											
		Total	CHP formation status			Land area over 10,000 sq. mi.[2]	And selected other characteristics						
							Population						Under 2,000 births
			"Funded"	Developing	Undeveloped		Total under 100,000	No urbanized area	Over ½ rural[2]	Over ¼ minority[2]	Over 42% under 20[2]	Over 25% poor[2]	
							Number						
All CHP areas	416	66	18	29	19	7	14	47	46	40	17	41	14
Regions:													
II	16	0	0	0	0	0	0	0	0	0	0	0	0
III	46	9	2	5	2	0	5	8	8	4	0	3	5
IV	84	39	11	15	13	1	2	27	28	30	12	30	3
V	58	0	0	0	0	0	0	0	0	0	0	0	0
VI	57	8	3	4	1	2	1	3	4	5	3	6	0
VII	54	2	1	0	1	0	1	2	2	0	0	1	1
VIII	45	5	0	4	1	2	3	4	2	0	1	0	3
IX	24	2	0	1	1	2	1	2	1	1	1	1	1
X	32	1	1	0	0	0	1	1	1	0	0	0	1
Area type:													
500,000 and over:													
SMSA	14	0	0	0	0	0	0	0	0	0	0	0	0
Mixed	35	1	1	0	0	0	0	0	0	1	0	0	0
SMSA and mixed:													
250,000-500,000	30	1	1	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	10	1	6	3	1	0	0	0	6	0	4	0
50,000-100,000	52	7	3	4	0	1	0	0	4	6	4	6	0
Non-SMSA only:													
25,000-50,000	81	16	3	8	5	3	2	16	12	10	4	10	2
10,000-25,000	90	21	7	5	9	1	5	21	21	12	7	15	4
Under 10,000	49	10	2	6	2	1	7	10	9	5	2	6	8

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (3)

1,000 and non-SMSA CHP areas are around 24 per 1,000.

Some people might try to use these figures to evaluate service. One conclusion that may *not* legitimately be drawn from these data is that medical service in those areas is inferior. Infant mortality rates are closely associated with malnutrition, ignorance, and unsanitary housing conditions. These conditions, rather than the quality of the medical care, may be at fault.

It was earlier pointed out that part of the rural health problem was to overcome transportation barriers and to reach people who needed medical services so that they were aware of this need and knew how to use the service. In considering the 66 areas with the highest infant death rates, these facts should be borne in mind: 46 of the areas are over half rural, 41 have high rates of poverty, only 18 are "funded", and 19 have no council to plan improvements (table 18).

POOR HOUSING

Poor housing often has a deleterious effect on health. Many conditions may be defined as poor housing. The house can be damp, drafty, inadequately heated, seriously dilapidated, crowded, or lacking in plumbing. This report deals with two conditions easily identified from the 1970 census: crowded, or lacking plumbing, or a combination of the two (table 19).

Crowded Units

An overcrowded unit is defined as one with more than one person per room. There are 59.7 million housing units in the study area, with the greatest numbers being found in regions V, IV, and II. Five million of them are crowded, with 55 percent of them in regions IV, V, and VI. By area type the average percentage crowded tends to rise as CHPs become less urbanized. However, areas with small SMSAs and medium or large sized towns have about the same percentage. The average proportion rises one point for areas with no town as large as 10,000.

While the average CHP area reported overcrowding in 9.5 percent of its occupied housing, there were 63 areas where 13 percent or more of the housing units were crowded (table 20). Of the 46 non-SMSA areas, 44 were over half rural. In 29 of the areas, over half the heads of crowded households were Blacks. As might be expected, 36 were in CHP areas with a high proportion of children.

Units Lacking Plumbing or Both Crowded and Lacking Plumbing

There are 3.6 million housing units lacking plumbing in the study area. Of these, 0.7 million are both crowded and lack plumbing. Nearly 11 million people live in these houses with potential health hazards. A unit lacking plumbing is defined by Census as one characterized by one or more of the following conditions: (1) lacking piped hot water and/or cold water, (2) lacking toilet or bathing facilities, or (3) with toilet and bathing facilities used by occupants of another unit.

The region with the highest percentages of housing units lacking in plumbing is IV, with VI and III vying for second place (table 19). By area type, the percentage climbs steeply and steadily from 2.2 percent for SMSA only areas with largest urbanized area 500,000 and over to 16.9 percent (19.4 weighted) for non-SMSA only areas with no town as large as 10,000.

Six percent of all housing in the study area lacked plumbing; the unweighted average for all CHP areas was 10.6 percent. The difference is due to the concentration of housing in the few areas with low percentages. There were 58 CHP areas where 20 percent or more of the houses lacked plumbing (table 21). All but 4 of these areas were over half rural and all but eight were non-SMSA only. In 15 of them, the number of housing units that were both crowded and lacking plumbing was 10 percent or greater.

Many homes without inside running water are scrupulously clean, particularly when the family lives that way from choice. But for many, a house lacking plumbing is all they can afford. In 49 of the areas with much housing lacking plumbing, over a quarter of the population is below the poverty line. This will pose quite a problem for the comprehensive health planner. It is highly probable that those who live in such housing will be unable to afford the capital outlays necessary to install running water, bathrooms, and septic tanks. They have neither the savings nor can they borrow. In many cases, the community itself would find it difficult to finance the development of a public water and sewer system. Even if one were made available, many might be unable to hook into it and might be forced to move away to even less desirable quarters. Furthermore, one-quarter of these areas with potential health hazards have no CHP council to assist with planning; in another third, councils have not yet reached the "funded" stage.

Poor plumbing and poor water supplies are a matter of concern to health inspectors and health planners. Lack of water for bathing, laundry, dishwashing, and other sanitary practices may result in skin diseases such as ringworm and impetigo. A doctor may cure amoebic dysentery and infectious hepatitis, only to have the patient get reinfected by contaminated drinking water.

Of the 66 CHP areas with the highest infant mortality rate, 32 are on the list of CHP areas with the highest percentage of housing lacking plumbing and 41 are on the list of areas with high percentages of housing that is both crowded and lacking in plumbing (table 22). Improving housing may be as important as improving health care.

LACK OF READY ACCESS TO A PHONE

Useful as a phone is in an emergency, it may be used even more frequently as a support service in day-to-day provision of health care. Among its

Table 19—Occupied housing units that are crowded, lack plumbing, or both: Average characteristics of CHP areas, 1970 [1, 2]

Regions and area types	Average			Percent of each area					
	Crowded	Lack plumbing	Both	Crowded		Lack plumbing		Both	
				Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted
	Number	*Number*	*Number*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
All CHP areas	11,960	8,718	1,755	8.3	9.5	6.1	10.6	1.2	2.4
Regions:									
II	36,603	13,732	1,470	7.2	5.9	2.7	3.4	.3	.4
III	10,484	10,397	1,838	6.7	8.5	6.6	15.1	1.2	3.2
IV	12,157	15,103	3,974	10.6	11.9	13.2	19.3	3.5	5.3
V	17,192	10,711	1,218	7.4	7.4	4.6	6.9	.5	.9
VI	12,491	8,977	2,501	11.4	12.5	8.2	11.0	2.3	3.3
VII	5,061	4,354	489	7.1	6.6	6.1	8.6	.7	1.0
VIII	3,110	1,858	304	8.5	10.1	5.1	6.9	.8	1.4
IX	26,865	6,280	1,195	8.6	12.5	2.0	5.0	.4	1.7
X	3,724	1,806	196	5.9	7.2	2.9	3.4	.3	.5
Area type:									
500,000 and over:									
SMSA only	70,874	19,697	2,273	7.6	7.0	2.1	2.2	.2	.3
Mixed	41,045	18,166	2,773	7.8	8.0	3.5	4.0	.5	.7
SMSA and mixed:									
250,000-500,000	15,647	8,356	1,509	7.9	8.5	4.2	4.3	.8	.9
100,000-250,000	11,457	11,066	2,312	8.4	8.8	8.1	8.6	1.7	1.9
50,000-100,000	7,629	8,363	1,981	9.9	10.0	10.9	10.9	2.6	2.6
Non-SMSA only:									
25,000-50,000	5,643	6,864	1,625	9.7	10.0	11.8	11.5	2.8	2.8
10,000-25,000	4,045	6,107	1,392	9.8	9.8	14.8	13.4	3.4	3.2
Under 10,000	2,338	4,180	934	10.9	11.0	19.4	16.[illegible]	4.3	3.8

[1] Crowded means more than one person per room of occupied housing unit. [2] Lack plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit.

Source: (3)

Table 20—Areas of high crowding: Number of CHP areas where 13 percent or more of the units have more than one person per room, with selected other characteristics, 1970[1] [2]

Regions and area types	All CHP areas[3]	CHPs with high crowding															
		Total	CHP formation status			And selected other characteristics											
							Population								Housing units		
			"Fund-"	De-veloping	Un-developed	Land area over 10,000 sq. mi.[4]	Total under 100,000	No urban-ized area	Over ½ rural[4]	Over ¼ minor-ity[4]	Over 42% under 20[4]	Under 8% over 64	Over ⅙ poor[4]	Over 28 deaths under 1 year Per 1,000 births[4]	Over ½ crowd-ed Negro units[4]	Over ¼ lack plumb-ing[4]	Over 10% crowd-ed lack plumb-ing[4]
		Number															
All CHP areas	416	63	23	22	18	14	16	44	41	37	36	21	41	34	29	22	15
Regions:																	
II	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
III	46	4	1	3	0	0	2	4	4	3	1	1	3	2	3	3	1
IV	84	27	8	10	9	1	0	20	22	23	13	6	24	25	22	18	9
V	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VI	57	18	9	6	3	7	3	7	5	6	13	8	12	4	4	1	4
VII	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VIII	45	6	1	2	3	2	6	6	5	0	6	2	1	1	0	0	0
IX	24	8	4	1	3	4	5	7	5	5	3	4	1	2	0	0	1
X	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Area type:																	
500,000 and over:																	
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed:	35	3	3	0	0	1	0	0	0	1	0	0	0	1	1	0	0
SMSA and mixed:																	
250,000-500,000	30	2	1	1	0	1	0	0	0	1	1	2	0	0	0	0	0
100,000-250,000	65	6	2	2	2	1	0	0	0	5	2	3	6	4	5	0	0
50,000-100,000	52	8	4	3	1	1	1	0	3	5	7	2	7	4	4	0	2
Non-SMSA only:																	
25,000-50,000	81	15	4	6	5	4	2	15	12	10	7	4	10	10	7	6	3
10,000-25,000	90	13	3	4	6	3	3	13	12	9	9	5	11	11	7	10	7
Under 10,000	49	16	6	6	4	3	10	16	14	6	10	5	7	4	4	6	3

[1] Crowded means more than one person per room of occupied housing unit. [2] Lack plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit. [3] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [4] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (2) (3)

Table 21—Poor plumbing: Number of CHP areas where 20 percent or more of units lack plumbing, with selected other characteristics, 1970[1] [2]

Regions and area types	All CHP areas[3]	CHPs with poor plumbing												
		Total	CHP formation status			And selected other characteristics								
						Population						Over 28 deaths under 1 year per 1,000 births[4]	Housing	
			"Funded"	Developing	Undeveloped	Total under 100,000	No urbanized area	Over ⅓ rural[4]	Over ⅓ minority[4]	Over 42% under 20[4]	Over ¼ poor[4]		Over 13% crowded[4]	Over 10% crowded and lack plumbing[4]
		Number												
All CHP areas	416	58	22	21	15	15	50	54	29	18	49	32	31	15
Regions:														
II	16	0	0	0	0	0	0	0	0	0	0	0	0	0
III	46	13	5	5	3	6	13	13	4	0	8	5	3	1
IV	84	33	11	13	9	4	30	33	21	13	30	24	21	9
V	58	1	1	0	0	0	0	1	0	0	0	0	0	0
VI	57	8	5	2	1	3	4	4	3	4	8	2	6	4
VII	54	2	0	0	2	2	2	2	0	0	2	0	0	0
VIII	45	0	0	0	0	0	0	0	0	0	0	0	0	0
IX	24	1	0	1	0	0	1	1	1	1	1	1	1	1
X	32	0	0	0	0	0	0	0	0	0	0	0	0	0
Area type:														
500,000 and over:														
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed:	35	0	0	0	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:														
250,000-500,000	30	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	1	1	0	0	0	0	1	1	0	0	0	0	0
50,000-100,000	52	7	5	2	0	1	0	4	4	4	7	2	5	2
Non-SMSA:														
25,000-50,000	81	12	1	7	4	0	12	12	8	4	10	9	8	3
10,000-25,000	90	21	7	7	7	4	21	20	9	8	17	14	12	7
Under 10,000	49	17	8	5	4	10	17	17	7	2	15	7	6	3

[1] Crowded means more than one person per room of occupied housing unit. [2] Lack plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit. [3] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [4] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (2) (3)

Table 22—Very poor housing conditions: Number of CHP areas where 5 percent or more of units are both crowded and lack plumbing, with selected other characteristics, 1970[1]

Regions and area types	All CHP areas[3]	CHPs with poor housing: Total	CHP formation status: "Funded"	CHP formation status: Developing	CHP formation status: Undeveloped	And selected other characteristics: Land area over 10,000 sq. mi.[4]	Population: Total under 100,000	Population: No urbanized area	Population: Over ½ rural[4]	Population: Over ¼ minority[4]	Population: Over 42% under 20[4]	Population: Under 8% over 64	Population: Over ¼ poor[4]	Over 28 deaths under 1 year per 1,000 births[4]	Housing: Over 13% crowded[4]	Housing: Over 20% lack plumbing[4]	Both crowded and lack plumbing: Over 4,000[4]	Both crowded and lack plumbing: Under 1,000	Both crowded and lack plumbing: Over ½ Negro[4]
										Number									
All CHP areas	416	61	20	23	18	7	13	49	51	38	24	12	49	41	42	47	28	4	42
Regions:																			
II	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
III	46	12	3	6	3	1	5	11	11	6	1	2	6	6	4	10	2	2	8
IV	84	37	12	13	12	0	3	30	33	28	13	6	34	31	26	30	21	1	30
V	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VI	57	9	5	3	1	3	3	5	4	3	7	2	8	2	9	6	4	0	4
VII	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VIII	45	1	0	0	1	1	1	1	1	0	1	0	0	1	1	0	0	1	0
IX	24	2	0	1	1	2	1	2	2	1	2	2	1	1	2	1	1	0	0
X	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Area type:																			
500,000 and over:																			
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:																			
250,000-500,000	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	5	1	2	2	0	0	0	0	5	0	2	4	5	4	0	4	0	5
50,000-100,000	52	7	5	2	0	1	1	0	4	5	5	0	7	3	6	6	4	0	5
Non-SMSA only:																			
25,000-50,000	81	13	2	7	4	2	0	13	12	9	6	3	10	10	11	10	8	0	11
10,000-25,000	90	21	7	6	8	3	4	21	20	12	9	5	17	16	13	18	9	0	13
Under 10,000	49	15	5	6	4	1	8	15	15	7	4	2	11	7	8	13	3	4	8

[1] Crowded means more than one person per room of occupied housing unit. [2] Lack plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit. [3] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [4] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed."

Sources: (1) (2) (3)

36

many uses are calls to make or break appointments, to check on patients, relatives or friends, and to obtain advice. Such services are particularly important in rural areas where travel time for doctor or patient are above average and transportation facilities limited.

In fact, the National Center for Health Statistics now considers a phone call as one form of a visit to a doctor. In 1969, 12 percent of the contacts to obtain medical advice or assistance were conducted by means of the telephone, according to the National Health Interview Survey. That survey also showed that the phone was used most frequently on behalf of young children. Adults 25 to 34 were the next highest users. Those not limited by ill health used it with the same relative frequency as those who were limited in the amount or kind of their major activity.

In the 1970 census, each household was asked whether there was a phone on which occupants could receive calls. (It could be in their own home, a neighbor's home, the hall of an apartment building, or in another building entirely.) The question was asked primarily for the convenience of the census enumerator, in case any problem arose necessitating a call or visit. Therefore, the figures shown in tables 23 and 24 are only an approximation of the true accessibility to a phone, but they are probably indicative of the need to improve our communication system.

Surprisingly, even by this broad definition, 13.3 percent of U.S. housing units (excluding those in Alaska and New England) did not have ready access to a phone. The greatest number of households without ready access to a phone are in regions IV, V, and VI, and in the most urbanized CHP areas. This is to be expected, because these regions and types of areas have the greatest number of housing units.

However, only regions IV and VI have a greater than average percentage when the total number of housing units is used in computing the estimate (weighted average). When unweighted averages are compared, it is found that planners in region III are also among those faced with an above average deficiency. Whichever average is used—weighted or unweighted—it will be seen that the phone problem becomes relatively greater as the CHP area becomes more rural.

The National Health Interview Survey showed that certain groups made relatively little use of the phone in consulting a doctor. This was particularly true of those whose family income was less than $7,000 or where the head of the household was not white or had less than 12 years of education. Data in table 24 suggest that this may not have been due to an unwillingness to use the phone, but rather to a lack of access to a phone. There were 76 CHP areas where over one-quarter of the households did not have ready access to a phone. In 62 of these areas, over one-quarter of the residents were poor and in 38 areas, over a fourth were in minority groups.

In view of the frequency with which the phone is used to contact doctors when children are sick, planners in the 21 areas with the highest percentage of persons under 20 and particularly in the 43 areas with very high infant mortality rates may want to consider what might be done to improve communications. Many of these areas are either over half rural or non-SMSA only and some are both. Overcoming barriers to accessibility is one of the primary goals of comprehensive health planners.

Table 23—Occupied housing units without access to a phone: Average characteristics of CHP areas, 1970

Regions and area types	Average size	Share of all CHP areas	Share of each area	
			Weighted	Unweighted
	Number	*Percent*	*Percent*	*Percent*
All CHP areas	19,143	100.0	13.3	16.9
Regions:				
II	58,965	11.8	11.6	9.1
III	18,076	10.4	11.5	17.5
IV	24,958	26.3	21.8	26.3
V	21,985	16.0	9.5	10.2
VI	20,297	14.5	18.6	21.6
VII	7,159	4.9	10.0	11.1
VIII	4,076	2.3	11.2	13.4
IX	36,019	10.9	11.6	16.4
X	7,046	2.8	7.5	13.7
Area type:				
500,000 and over:				
SMSA only	105,243	18.5	11.3	9.8
Mixed	54,997	24.2	10.5	11.1
SMSA and mixed:				
250,000-500,000	24,308	9.2	12.2	12.2
100,000-250,000	19,612	16.0	14.3	15.1
50,000-100,000	13,799	9.0	18.0	18.0
Non-SMSA only:				
25,000-50,000	10,652	10.8	18.3	18.4
10,000-25,000	8,316	9.4	20.2	19.2
Under 10,000	4,740	2.9	22.0	20.4

Source: (3)

37

Table 24—Poor communication: Number of CHP areas where a quarter or more of the units lack access to a phone, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	CHPs with poor communication															
		Total	CHP formation status			And selected other characteristics											
			"Funded"	Developing	Undeveloped	Land area over 10,000 sq. mi.[2]	Population						Over 28 deaths under 1 year per 1,000 births[2]	Housing[3] [4]			
							Total under 100,000	No Urbanized area	Over ½ rural[2]	Over ¼ minority[2]	Over 42% under 20[2]	Over ¼ poor[2]		Over 13% crowded[2]	Over 20% lack plumbing[2]	Over 5% crowded and lack plumbing[2]	Over 20,000 without phone[2]
									Number								
All CHP areas	416	76	30	27	19	10	14	57	59	38	21	62	43	39	49	50	22
Regions:																	
II	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
III	46	10	5	3	2	0	5	9	10	4	0	8	4	3	9	8	2
IV	84	45	15	18	12	2	3	35	37	28	13	36	32	23	30	33	17
V	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VI	57	16	9	5	2	5	3	8	8	5	5	15	4	10	8	7	3
VII	54	2	1	0	1	0	1	2	2	0	0	2	1	0	1	0	0
VIII	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IX	24	3	0	1	2	3	2	3	2	1	2	1	2	3	1	2	0
X	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Area type:																	
500,000 and over:																	
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:																	
250,000-500,000	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	5	1	1	3	0	0	0	1	3	0	3	4	2	0	2	5
50,000-100,000	52	13	8	5	0	2	1	0	8	8	4	12	4	5	7	6	4
Non-SMSA only:																	
25,000-50,000	81	19	5	8	6	4	1	19	12	10	6	14	12	13	10	10	8
10,000-25,000	90	25	9	8	8	4	5	24	24	11	9	20	16	13	18	20	5
Under 10,000	49	14	7	5	2	0	7	14	14	6	2	13	7	6	14	12	0

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed." [3] Crowded means more than one person per room of occupied housing unit. [4] Lack plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit.

Sources: (1) (2) (3)

A RURAL OVERVIEW

Up to now, this report has introduced each variable separately. This section pulls these threads together to present a first approximation of the rural picture of the United States (excluding Alaska and the New England States) as it affects rural health planning.

Participation in Comprehensive Health Planning

The CHP program gives rural people and rural communities a chance to make their needs known, secure help in determining how best to meet those needs, and have their requirements included in the goals and priorities of area plans. However, this will occur only if the rural population and the rural communities participate in the CHP program. On the whole, the record is good, particularly when numbers of people, rather than numbers of CHP areas are considered. The idea of comprehensive planning did not gain general recognition until the mid-1960's. It took time to determine which of the counties were to combine to form CHP areas. Local rivalries and fears of domination had to be overcome.

As of May 1973, only half of the potential CHP areas as delineated for this study were in "funded" status. However 89 percent of the urbanized area population and 64 percent of the rural population lived in areas that contained a "funded" agency. This somewhat understates the difference in coverage between rural and urbanized area populations, since many counties–mostly non-SMSA counties–had not yet joined the "funded" or developing councils in the areas to which they had been assigned. Only 5.8 percent of the total population and 9.8 percent of the rural population lived in areas that had not yet formed a council. Those counties containing large numbers of urbanized area residents were the most likely to be organized and funded. Some agencies will have to expand to include the more rural neighboring counties assigned to their area. But even among the CHP areas that were non-SMSA only in type, less than 17 percent of the population was living in areas where no development had taken place.

On a regional basis, over 80 percent of the rural population of regions V and IX lives in areas with a "funded" agency. Regions VII and VIII, with percentages of 55 and 45, have the greatest proportion in developing areas. However, region VIII also has 16.6 percent of its rural population in areas without a council. Only region IV, with 19 percent, has a higher proportion in undeveloped areas.

To a very large extent, initiative to organize comprehensive health planning councils was left to local communities. Thus, one would have expected many of the rural and depressed areas to have been left out. However, due to health programs undertaken by the Appalachian Regional Commission, the Economic Development Administration, and the Office of Economic Opportunity many depressed rural areas with poor health conditions turned out to have a core of concerned citizens and professional staff who were already planning for specific health projects. Thus, they were ready to organize councils. CHP areas with the greatest poverty, highest infant death rates, and highest percentage of poor housing usually were in the "funded" or developing stage. The rural areas lag, but not as much as might have been expected.

The Potential for Rural Influence

A comprehensive health planning program–with its insistence on consumer participation, broad spatial coverage, and goals and priorities covering all phases of the health problem–provides the opportunity for rural problems to be solved within a framework that looks at the total health problem for an area and for all people within that area.

Problems facing the rural representatives on CHP councils and committees or staff responsible for the rural communities within a CHP area will differ depending upon the "rural" characterization of the area. Where the rural population is large, either percentagewise or numerically, they may find it relatively easy, provided their representation is forceful, to make rural needs known and to win a commitment to programs designed to attain rural health goals. Other areas may have so few rural people that there may be no rural representative on the council. In some cases, rural communities will be so remote that their problems may be overlooked.

The rural population is just over a fourth of the population. But in the 49 CHP areas containing 52 percent of the total population, the average proportion of rural residents is only 10.5 percent. The proportion rural in the other 367 CHP areas is so much higher that the average of the percentages in each of the 416 areas comes to 47.2 percent. In 205 areas, rural residents equal or outnumber the rest of the population. Table 25 regroups the 416 CHP areas, taking into consideration relative size (over or under half rural), absolute size (over or under 200,000 rural residents), and the presence or absence of centers of population. On this basis, 89 percent of the rural population is fairly evenly distributed among three of the major groups. The remaining 11 percent is in the 20 CHP areas that are both over half rural and have over 200,000 rural residents. If the non-SMSA areas where less than half the population is rural were added to the first two groups, nearly half the rural population would be located in areas where they should have little difficulty in making their needs known.

However, from the standpoint of the health problem, this is somewhat overly optimistic as regards the truly rural population, i.e., those living in sparsely settled areas with transportation problems. If the rural representatives on the council lived in the country but their social and business lives were essentially urban-oriented, then the truly rural residents or rural communities, especially the more remote ones, may be under-represented.

Also some communities that are rural (in the health problem sense) may run into definitional difficulties when they try to get representation or a

39

Table 25—A summary of rural type areas: Rural and total population compared, 1970

Regions and area types	All CHP areas[1]	Total population		Rural as percent of total population		Rural population	
				Weighted	Un-weighted		
	Number	*Million*	*Percent*	*Percent*	*Percent*	*Million*	*Percent*
All CHP areas	416	191.1	100.0	26.7	47.2	50.9	100.0
Area over half rural:[2]							
Under 200,000 rural residents	**185**	**25.2**	**13.2**	**63.5**	**65.7**	**16.0**	**31.4**
Area type: SMSA[3]	21	4.7	2.5	55.4	56.2	2.6	5.1
Non-SMSA	164	20.5	10.7	65.3	66.9	13.4	26.3
Over 200,000 rural residents	**20**	**9.9**	**5.2**	**58.1**	**60.1**	**5.7**	**11.3**
Area type: SMSA[4]	9	5.2	2.7	53.1	54.3	2.8	5.5
Non-SMSA	11	4.6	2.4	65.3	64.9	2.9	5.8
Area under half rural:							
Over 200,000 rural residents	**48**	**77.1**	**40.3**	**19.5**	**27.2**	**15.0**	**29.5**
Area type: Large SMSA	24	57.6	30.1	13.7	16.6	7.9	15.5
Small SMSA	24	19.5	10.2	36.6	37.7	7.1	14.0
Under 200,000 rural residents	**163**	**78.9**	**41.3**	**18.0**	**30.7**	**14.2**	**27.8**
Area type: Large SMSA	24	41.0	21.4	5.7	10.5	2.3	4.6
Small SMSA	94	32.2	16.8	29.3	30.7	9.4	18.5
Non-SMSA	45	5.8	3.0	41.8	41.3	2.4	4.7

[1] New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed." [3] Consists of 1 CHP area with large urbanized area (500,000 or more residents) and 20 CHP areas with medium or small sized urbanized areas. [4] All 9 have medium or small sized urbanized areas.

Source: (3)

share of the available resources. The census defines both a small town of 2,500 and a large central city as urban. But from the health point of view, a small town's problems are closely akin to those of the people who live near it but outside its limits. In fact, it is usually in or near these small towns that the access point for primary health care is located, and the residents of these towns provide an important share of the patient population. The problems of the small town or city in supporting a wide range of health care services at a reasonable cost and of attracting and retaining the necessary manpower are very different from those of the big city.

A similar problem—but one affecting both the rural and small town urban resident—is likely to arise if an SMSA vs. non-SMSA definition is used to distinguish the two groups. Thirty percent of the SMSA population is rural by census definition; the proportion is even larger if the residents of the small towns are included. The problems of the non-urbanized area residents may be very similar to those of the non-SMSA residents just across the county border. This is likely to be particularly true where the SMSA area is very large and the SMSA city is off in one corner.

The Non-SMSA Only Type of Area

In SMSA only or mixed type CHP areas, the planner only has to deal with problems of sparse population and rural transportation for a relatively small portion of the area. In non-SMSA only type areas, the whole area or large portions of it are likely to be confronted with rural health problems. These 220 non-SMSA CHP areas, where 37 percent of the rural population lives, do not have a city of at least 50,000; 49 of them do not even have a city of 10,000. Only 13 of these areas have more than 300,000 residents. Today, quality health care for a rural area is dependent on the availability in one form or another of the secondary and tertiary health services usually located at a center of population or in an area with a large population.

Under P.L. 93-641, most of these areas have to combine with others to form the new health service areas. (Some may continue to function in amended form as subarea councils.) This will help coordinate the decisionmaking process needed to formulate the health plan for the area. But it will not solve some of the basic problems. There are 52 CHP areas (potential subareas) which do not have a city of even 50,000 within 100 miles of the center of their area; 40 areas do not have a city of at least that size in an adjoining area. As the territory of the combined areas increases in size, it may become more difficult to retain the benefits of local input into the planning process. In addition, the council will have to develop new procedures to overcome the difficulties presented by the large number of reviews called for in order to provide health services for such a widely dispersed population.

Many of these areas will continue to find it difficult, if not impossible, to attract and retain the resident medical personnel needed to continue delivering health care in the traditional manner. Instead, they will have to choose among the new

options made available by improved technology. For this purpose, it may be more practical for them to become subarea councils. This will enable them to plan for their smaller area and provide technical assistance in dealing with the major facilities in adjoining planning areas, which are the source of these services. As an officially recognized subarea council, they may have more influence than as individual counties within the larger health service agency. In the latter case, their chances of making their needs known and getting them attended to could be uncertain.

As a group, these CHP areas also have other problems. They have a high percentage of their residents below the poverty line, 65 years old or over, living in poor housing, or with poor access to a phone. All of these characteristics are associated with a greater than average need for medical care. Their infant death rate is above the national average. In most cases, the smaller the size of the largest city, the more adverse the average. Their average percentage of residents in the productive ages–20 to 64–and their average aggregate and per capita incomes are low, indicating probable difficulty in raising matching funds or providing financing for needed facilities. On the other hand, greater travel time and the disadvantages of small-scale operation are likely to increase per capita costs.

However, a good deal of attention is being directed to devising ways to bring health care to such communities at a price that will make delivery self-sustaining. In addition, Federal and State legislation often provides special terms for rural or economically depressed communities.

Areas That Are Over Half Rural

Of the 205 CHP areas that are over half rural, 175 are also non-SMSA only (table 26). The one area that contains part of a large SMSA and the 29 that have smaller SMSAs raise the averages slightly, but not enough to raise them above the "all CHP area" averages.

Sixty-three of these areas are at least 70 percent rural and two are wholly rural. Twenty have over 200,000 rural residents. They are to be found in every region. However, in the South (except in Arkansas and Louisiana and along the eastern border of Texas and Oklahoma) few are west of the Mississippi.

The tables of potential problem areas for each variable have indicated those areas that were also over half rural. Table 26 presents information for variables with an appreciable number of rural areas that are over half rural appearing as potential problem areas. (Under the "all CHP area" line, the total number of areas appearing on each list is shown in parentheses.) Of the 416 CHP areas, half are over half rural, yet–except for the list of "funded" areas and areas with over 10,000 square miles–in each column, those that are over half rural are well in excess of half the total–mostly 75 percent or better.

Most of the CHP areas with potential problems due to either size of population or territory are in regions VII and VIII. For other variables indicative of potential problems, region IV has by far the most disproportionate number of areas. Some distance behind, but usually ahead of all others, come regions III and VI.

The Future

The second generation of comprehensive health planning agencies is about to come into being. On September 2, 1975, the area designations for the new health service areas appeared in the Federal Register. The National Health Planning and Resources Development Act of 1974–signed into law January 4, 1975–mandates that the whole country be covered by health service agencies (HSA) which will have Federal funds to enable them to do comprehensive health planning. The new act combines many of the functions of the Comprehensive Health Planning Program, the Regional Medical Program, the Experimental Health Services Delivery Systems Program, and the Hill-Burton Program. It gives the new areawide and State agencies added powers and responsibilities for planning and ensuring the implementation of plans. In some cases, existing CHP agencies will form the core of the new HSA; in others, the new agency will contain only elements of existing agencies. Still others will be wholly new creations. These new agencies will be scrutinized closely to see how well rural people have fared in the reorganization.

CE 209 725

Table 26—Rural population: Number of CHP areas whose residents are over half rural, with selected other characteristics, 1970

Regions and area types	All CHP areas[1]	Over half rural CHPs[2]																	
		Total	CHP formation status			And selected other characteristics													
			"Funded"	Developing	Undeveloped	Rural residents: Total over 200,000[2]	Rural residents: Percent of area 50-70%	Rural residents: Percent of area 70% and over	Land area over 10,000 sq. mi.[2]	Population: Total under 100,000	Population: Over ¼ minority[2]	Population: Over 42% under 20[2]	Population: Over 13.5% over 64[2]	Population: Over ¼ poor[3]	Over 28 deaths under 1 year per 1,000 births[2]	Housing[3 4]: Over 13% crowded[2]	Housing[3 4]: Over 20% lack plumbing[2]	Housing[3 4]: Over 5% crowded and lack plumbing[2]	Housing[3 4]: Over 25% without phone[2]
		Number																	
All CHP areas	416 (416)[5]	205 (416)	78 (210)	88 (150)	39 (56)	20 (68)	142 (142)	63 (63)	32 (75)	73 (93)	39 (65)	30 (53)	47 (67)	57 (74)	46 (66)	41 (63)	54 (58)	51 (61)	59 (76)
Regions:																			
II	16	4	2	1	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0
III	46	30	14	10	6	3	13	17	1	9	5	1	2	9	8	4	13	11	10
IV	84	51	18	21	12	8	32	19	1	3	26	13	2	32	28	22	33	33	37
V	58	25	16	3	6	6	22	3	6	1	0	2	4	0	0	0	1	0	0
VI	57	17	11	5	[illegible]	1	16	1	3	2	4	3	9	11	4	5	4	4	8
VII	54	31	3	24	4	0	21	10	5	19	0	0	27	3	2	0	2	0	2
VIII	45	26	5	14	7	0	16	10	11	23	0	8	2	1	2	5	0	1	0
IX	24	6	4	1	1	0	5	1	2	4	4	2	0	1	1	5	1	2	2
X	32	15	5	9	1	0	13	2	3	12	0	1	1	0	1	0	0	0	0
Area type:																			
500,000 and over:																			
SMSA only	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mixed:	35	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
SMSA and mixed:																			
250,000-500,000	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100,000-250,000	65	9	8	0	1	5	9	0	1	0	0	1	1	1	0	0	1	0	1
50,000-100,000	52	20	13	5	2	4	20	0	2	0	6	3	5	8	4	3	4	4	8
Non-SMSA:																			
25,000-50,000	81	54	25	21	8	8	50	4	8	3	12	7	9	12	12	12	12	12	12
10,000-25,000	90	75	19	39	17	3	48	27	14	34	12	10	18	20	21	12	20	20	24
Under 10,000	49	46	13	22	11	0	14	32	7	36	9	9	14	16	9	14	17	15	14

[1] This column is included to facilitate comparisons. Note New England and Alaska are excluded. [2] "Over . . . " is short for: "A few areas may actually be equal to, instead of greater than the value listed." [3] Crowded means more than one person per room of occupied housing unit. [4] Lack plumbing means one or more of the following: 1) lack piped hot water and/or cold water, 2) lack toilet or bathing facilities, or 3) have toilet and bathing facilities used by occupants of another unit. [5] Figures in () are the number of CHP areas with this characteristic regardless of their rural status.

Sources: (1) (2) (3)

AN ATTACHED COMPREHENSIVE HEALTH PLANNING AREA MAP WAS NOT REPRODUCIBLE AND WAS REMOVED FROM THIS DOCUMENT PRIOR TO ITS BEING SUBMITTED TO THE ERIC DOCUMENT REPRODUCTION SERVICE.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON, D.C. 20250

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

U.S. MAIL

THIRD CLASS

RESEARCH LIB.
CENTR VOC & TECH ED
OHIO STATE UNIV.
1900 KENNY RD
COLUMBUS, OH 43210

ERA32

44

The Economic Research Service (ERS) through its Economic Development Division (EDD) provides information to help improve conditions of rural life and to facilitate the increased productivity of nonmetro people. It collects, analyzes, and publishes data on population; employment and incomes; economic and social development; community institutions, facilities, and services; State and local government finances; and rural housing.

This publication focuses on rural health problems within the framework of comprehensive health planning and on multicounty planning in general. Other related EDD publications include:

Social and Economic Characteristics of the Population in Metro and Nonmetro Counties, 1970, AER 272.

The Role of Multicounty Development Districts in Rural Areas, AER 307.

Economics of Rural Ambulance Service in the Great Plains, AER 308.

Single copies are free on request to Publication Services, Rm. 0054-S, ERS, U.S. Department of Agriculture, Washington, D.C. 20250.

ACCESSION NUMBER: VT103547

TITLE: PROJECT BRIDGES: SPANNING THE GAP BETWEEN EDUCATION AND EARNING A LIVING. INTERIM EVALUATION REPORT.

DESCRIPTOR: *PROGRAM EVALUATION; DEMONSTRATION PROGRAMS; PROGRAM DEVELOPMENT; *OCCUPATIONAL GUIDANCE; *CAREER EDUCATION; OCCUPATIONAL CLUSTERS; HANDICAPPED STUDENTS; ELEMENTARY SECONDARY EDUCATION; SCHOOL COMMUNITY PROGRAMS

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 34P.

ABSTRACT: EVALUATION WAS CONDUCTED OF THE FIRST-YEAR ACTIVITIES OF A THREE-YEAR PROJECT TO PROVIDE CAREER EDUCATION, OCCUPATIONAL GUIDANCE, AND IN-SCHOOL AND OUT-OF-SCHOOL VOCATIONAL PROGRAMS AND SERVICES TO ELEMENTARY AND SECONDARY STUDENTS IN THE SOMERSWORTH, NEW HAMPSHIRE AREA. ACTIVITIES WERE IMPLEMENTED FOR THESE MAJOR STUDENT OBJECTIVES: GUIDANCE FOR CAREER DECISIONS, GUIDANCE FOR VOCATIONAL PREPARATION, OCCUPATIONAL PREPARATION WITHIN THE SCHOOL, OCCUPATIONAL PREPARATION WITHIN THE COMMUNITY, CAREER PREPARATION ARTICULATION, AND PROVIDING FOR THOSE WITH SPECIAL NEEDS. INCLUDED AMONG THE ACTIVITIES WERE: WORKSHOPS, DEVELOPMENT OF CAREER PROGRESS BOOKLETS AND GUIDANCE GATE CHECKLISTS, MODIFICATION OF VOCATIONAL PROGRAMS IN FIVE OCCUPATIONAL CLUSTER AREAS, COMMUNITY JOB PLACEMENT FOR 26 STUDENTS, EXPANSION OF CAREER EDUCATION IN THE ELEMENTARY AND MIDDLE SCHOOLS, AND THE BEGINNING OF INTEGRATION OF SPECIAL NEEDS STUDENTS INTO THE REGULAR VOCATIONAL PROGRAM. EVALUATION PROGRESS IS DESCRIBED BY STUDENT AND MANAGEMENT OBJECTIVES AND SPECIFIC RECOMMENDATIONS ARE OFFERED FOR PROGRAM IMPROVEMENT BASED ON THE EVALUATION. (NJ)

CONTRACT NUMBER: G310-75-0007

INSTITUTION NAME: CEDAR ASSOCIATES, KEENE, N.H.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 547

OCT 21 1980

INTERIM EVALUATION REPORT

for

PROJECT BRIDGES

"SPANNING THE GAP BETWEEN EDUCATION AND EARNING A LIVING"

Somersworth School District
Somersworth, New Hampshire

Project No: 502A150001D
Grant No: G310-75-0007

July 1, 1975 - June 30, 1976

VT 103 547

2

PROJECT BRIDGES: "SPANNING THE GAP BETWEEN EDUCATION AND EARNING A LIVING"

Exemplary Program in Vocational Education

Somersworth, New Hampshire

Project No: 502A1500ID
Grant No: G310-75-0007

INTERIM EVALUATION REPORT

July 1, 1975 - June 30, 1976

Submitted By:

CEDAR ASSOCIATES
22 Drummer Road
Keene, New Hampshire 03431

CE 009 717

TABLE OF CONTENTS

EXECUTIVE SUMMARY ---------- 1

CONTEXT EVALUATION ---------- 3

SCOPE OF THE PROGRAM ---------- 7

PROJECT GOALS AND OBJECTIVES ---------- 9

EVALUATION OF FIRST YEAR EFFORTS ---------- 13

CONCLUSIONS, COMMENDATIONS AND RECOMMENDATIONS ------ 25

EXECUTIVE SUMMARY

This evaluation report addresses the first year's efforts of PROJECT BRIDGES, a three-year exemplary vocational education project funded by the U.S. Office of Education.

The project is located in Somersworth, New Hampshire, a semi-rural area in the southeastern part of New Hampshire. The school system encompasses five elementary schools (69 teachers; 1352 students), a middle school (26 teachers; 512 students) and a high school (55 teachers; 880 students).

PROJECT BRIDGES is staffed by a full-time project director, a full-time guidance coordinator and a full-time administrative assistant. The local vocational director serves as a part-time project administrator to assist with overall project direction. The annual budget is $109,611.

During the first year, PROJECT BRIDGES has implemented a number of activities under all six areas in which it has student objectives. In summary:

I. Guidance for Career Decisions - Phase I

Workshops, career progress booklets and the guidance gate checklists to monitor student progress in guidance has been developed. The use of Operation Guidance concepts and materials at the high school was noted. A new advisor/advisee system is planned.

II. Guidance for Vocational Preparation - Phase II

The beginnings of guidance advisory committees were noted as well as the guidance gate checklist for vocational students. A follow-up survey of gradutes is planned.

III. Occupational Preparation in the School

Program modifications have been completed or are being developed in the five clusters of construction, business and office, agri-business, communications and media, and hospitality and recreation.

IV. Occupational Preparation Within the Community

Twenty-six students were placed in the community for vocational education. Task analysis for these occupations was done as was the inservice training of community instructors.

V. Career Preparation Articulation

Career education activities in the elementary and middle schools were expanded.

VI. Providing for those with Special Needs

Cooperative efforts with the Strafford Learning Center marks the beginning of full integration of speical needs students into the regular vocational programs.

Management Component

The project has been staffed and directed with skill. All internal management and reporting functions are being conducted in a satisfactory manner.

Recommendations

1. A more systematic approach to the structure and direction of career guidance and career education is needed in grades 1-8 to assure that a coordinated program results.

2. Curriculum development and writing for vocational programs at the high school actively involve advisory committees, follow a common format, consider student interests, and move forward on the development of skills checklists.

3. The evaluation of the effectiveness of vocational training in the community be linked closely to students' performance as related to the original task analysis.

4. Intensive work with teachers on the methods and materials for teaching students having special needs be undertaken in the second year.

5. Attention be directed to those congruents which PROJECT BRIDGES wishes to disseminate so that proper documentation (process and product) can be developed to prove their effectiveness to other school districts.

CONTENT EVALUATION

This evaluation report addresses the first year efforts of a three-year program to eliminate the gap between school and earning a living for the youth of the Somersworth School District.

The project, PROJECT BRIDGES, is funded by the U.S. Office of Education under Part D (Exemplary) of the Vocational Education Act of 1963, as amended.

Project goals address program components in grades 1-12, although primary emphasis is on the reorganization of the secondary vocational programs into a cluster approach and to develop community based training sites for vocational education.

The Locale

Somersworth is located in the southeastern part of New Hampshire, within easy access of cultural centers, metropolitan Boston, and mountain and seashore recreation. Community progress is evident through a sweeping urban renewal program for business, housing, and cultural facilities. Growing recreational programs enhance community spirit.

Growth in the community and region has been continuous. The 1970 census reports the population of the Somersworth Region at 39,400 of which 9,977 are enrolled in public schools. Nineteen-eighty projections show 11,038 students enrolled in area public schools of which 1,040 will be in Somersworth High School.

The population growth rate in the towns which encompass vocational Region 12 in the 1960's and early 1970's was particularly interesting in that Somersworth, the center of vocational education in Region 12, grew at a very slow rate of 6% and is expected to peak at 16% from 1970-1980; the second lowest rate in the country. The Somersworth Industrial Development Committee strongly suggests that Somersworth does not anticipate any future substantial population growth because of the overall lack of geographical space for new home construction.

Much of the great density of population of Strafford County is centered in the three cities of Somersworth, Dover and Rochester. At a county-wide density rate of 166 per square mile, compared to 82 per square mile state-wide, we are left with the reality of greater than average future growth in the feeder towns that comprise Vocational Region 12.

The most substantial gain in population county-wide was in the age range 15-24 which experienced over half the total population increase of the region. The change implies that in the very near future there will be a much larger percentage of persons in the child bearing years than there was in the past and a higher number of births is very probable.

Most of the working population in Somersworth is employed in one of the many manufacturing industries located in the region; however, labor projections indicate a leveling off trend for production occupations and an increase in personal and industrial service occupations during the next five year period creating a need for greater diversification of occupational training opportunities both for those in school and out of school.

Economic conditions for a majority of the families in Somersworth fall below the state average and lack of family income restricts the graduating students' opportunities for post-secondary education.

More restrictive than financial considerations for self-improvement and professional training is the attitude of many parents. The vision of both parents and students if often influenced by the fact that both parents work in low-level ability occupations and have never attended college and in many cases never completed high school. Sixty-eight percent of the graduating class of 1974 directly entered the world of work and did not pursue any additional occupational training. The major industrial employers in the Somersworth area have traditionally been non-durable manufacturers of textiles and footwear. Reflective of the nation as a whole has been the decline of these industries regionally.

Since 1968, 1500 jobs have been eliminated in non-durable manufacturing locally, resulting in New Hampshire's highest unemployment rate in August, 1975, of 8.4% with a seasonally adjusted state wide rate of 6.2%.

In the face of this local economic crisis situation, local business leaders, government officials, and city planners have organized to try and effect their personal initiative, business sense, and Yankee combativeness on the threatening economic backslide of a whole community.

Subjectively speaking, as a community, the people of Somersworth are extremely work oriented. A recent survey finds that in 58% of all families, both parents are employed. This has contributed to Somersworth having the second highest mean family income in the county after Durham, the professional center of southern New Hampshire.

The social implications which are becoming obvious is that the work ethic is strongly engrained in these people and it is a trait which is passed on to subsequent generations. A statistically unsubstantiated but well-known fact is that a lot of secondary school age children have part-time jobs. This is in light of the staggering unemployment level and overall lack of work. Simply, these people find work, no matter how unpleasurable, and do so for the survival of the family unit which is as strong here as can be found anywhere including the more agrarian parts of the country.

The School System

PROJECT BRIDGES is designed to provide services to two school districts: The Somersworth School District and the Rollinsford School District. These two districts, along with the Oyster River School District, comprise the Supervisory Union #56 School District.

The schools in the project are as follows:

Elementary

Green Street School	Somersworth	21 Teachers	478 Students
Great Falls School	Somersworth	11 Teachers	226 Students
Hilltop/Chandler School	Somersworth	24 Teachers	275/143 Students
Rollinsford Grade School	Rollinsford	13 Teachers	230 Students
		69	1,352

Middle School

Somersworth Middle School	Somersworth	26 Teachers	512 Students

High School

Somersworth High School	Somersworth	55 Teachers	880 Students

The townships served by these districts are Somersworth and Rollinsford.

Each district has its own Board of Education; Somersworth has 9 members and Rollinsford has 3 members.

There is a single superintendent of schools who serves these two districts and the Oyster River Cooperative School district. Thus the whole Supervisory Union #56 has direct or indirect contact with PROJECT BRIDGES.

SCOPE OF THE PROGRAM

PROJECT BRIDGES is a comprehensive program involving all grade levels and all schools in the Somersworth School District. While the focus of effort is in strengthening and expanding the vocational programming at the high school, the needs of career education and career guidance in the elementary and middle school are being met.

The project has three broad components; guidance, vocational clustering and special needs.

The Guidance Component consists of two phases. Phase I provides for a variety of career guidance activities from grade 1 until students make a tentative vocational decision. Phase II provides for guidance services to those students who select the vocational route at the high school level.

Clustering of the vocational programs will work in the five vocational clusters of Argi-Business, Construction, Business and Office, Hospitality and Recreation, and Communications and Media. Program modifications within each of these cluster areas will be made each year through the revision of in-school vocational curricula and through the development of community training sites. Career education activities at the elementary and middle school levels will be designed to articulate with these clusters. Also a continuum of skills for each vocational program will be developed.

The Special Needs congruent utilizes the Strafford Learning Center to assist in the identification, diagnosis and prescription of learning programs for special students. Inservice training for vocational teachers to enable them to implement curriculum modifications for special needs is also included.

Staffing

The PROJECT is staffed as follows:

Project Administrator	Part-time - This person is also the vocational director of the district.
Project Director	Full-time position to direct the operations of the program.
Guidance Coordinator	Full-time position to concentrate on Phase I and II of the guidance component.
Administrative Assistant	Full-time to provide secretarial and clerical support to the program.

All staff are housed at the Somersworth High School, and as indicated above, focus their efforts at the secondary level.

Budget

The annual budget of PROJECT BRIDGES is $109,611 with the following approximate line item expenditures:

Personnel	$ 32,500
Benefits	3,500
Travel	5,300
Equipment	14,200
Supplies	33,500
Contractual	6,000
Other	14,611
TOTAL	$109,611

PROJECT GOALS AND OBJECTIVES

PROJECT BRIDGES has six student objectives (two in Guidance, three in Clustering and one in Special Needs) and six management objectives. These are listed below just as they appear in the project proposal.

Guidance Component

Student Objective No. 1, Guidance for Career Decisions, Phase I

Objective: As a result of a variety of activities it will be insured that from the time students start grade 1 until they make a tentative vocational decision, not only will they receive guidance regarding careers, but also have their progress monitored and reviewed by parents, teachers/advisors, and guidance personnel at key points during their education.

Rationale: The process of selecting a career is a complex undertaking that must not be left to chance. The changing nature of our society and the ever fluxing job market requires young adults that are prepared not only for thet first job but well enough prepared to plan for perhaps several job changes throughout their work-lives.

Student Objective No. 2, Guidance for Vocational Preparation, Phase II

Objective: From the time a student selects a vocational route to training until the student no longer requests the school's guidance will be provided continuously by all individuals concerned for the student's career development.

Rationale: The responsibility for career guidance belongs to everyone. A concentrated effort by the entire school community, the local employers that will hire future students, parents, and interested groups outside the school, will increase the value of guidance activities and increase the students' chances for success.

Cluster Component

Student Objective No. 3. Occupational Preparation within the School

Objective: In order to increase student opportunities through clustering, no less than one new in-school vocational program will be started in each of the five occupational clusters selected, per year for the three years duration of the project.

Rationale: It is necessary to expand vocational opportunities for large student enrollments and where specific laboratories are needed. Some vocational training sites are unavailable in the local community and some will offer greater cost effectiveness as part of an in-school program rather than in the local community.

Student Objective No. 4, Occupational Preparation within the Community

Objective: Recognizing that there are many occupations within the community as well as vocational environments that cannot be reproduced within the school, the project will insure that no less than twenty (20) public training stations and instructors are contracted during the first year of the project. During the second year, twenty (20) sites and instructors will be located in private industry.

Rationale: It is impossible for every school to provide vocational laboratories and skilled specialists in all occupational areas because of small numbers of potential enrollees and the related high operational costs. Cost effectiveness will increase by allowing local industry to do the vocational training where student enrollments will be small and facility costs would be extensive. Having the school system and local industry team together to provide a full range of occupational training will also increase the ties between training and actual jobs.

Student Objective No. 5, Career Preparation Articulation

Objective: The project staff will develop and implement a continuum of career exposures and skill development activities starting in grade 1 and terminating with job acquisition. Each existing vocational program will have a continuum that includes strands ranging from unskilled to semi-professional jobs. Rate of continuum development will be no less than ten (10) per year with continuums for all vocational programs developed within three years.

Rationale: There is a need for all students to be able to visualize the relationship between existing career awareness activities in the early educational years, vocational exploration opportunities that are in operation during middle school years, and the objectives of each vocational program offered in both high school and post-secondary vocational/technical schools.

Special Needs Component

Student Objective No. 6, Providing for Those with Special Needs

Objective: Recognizing that there are some students who will not be able to succeed under normal class conditions because of a learning or physical disability, the project will insure that any vocational student with special needs or abilities will be able to succeed due to modifications to regular programs to meet his needs or establishing special programs for groups of students with like needs and abilities.

Rationale: In 1971 the New Hampshire State Legislature changed the laws pertaining to the education of handicapped children. These laws now mandate "that all handicapped children, physically, intellectually, and emotionally capable of being befitted by instruction shall attend an approved school or program." (RSA 186-A:6)

At the national level, the 1974 amendments to Title VI-B of the Elementary and Secondary Education Act (PL 93-380) have placed very direct obligations on schools providing programs and services that are different or in addition to what is provided for the regular student body of those considered handicapped. Interpretation from the U.S. Office of Education indicates that these requirements are not limited specifically to programs funded under this specific law, but to all state and local programs serving handicapped children. While students classified as disadvantaged are not specifically included in the procedures that are outlined, they are most appropriate.

Management Component

Management Objective No. 1, The Management System

Objective: Within sixty (60) days after project approval notification, a start of funding date will be established. All management and administrative individuals and committees will be selected and notified prior to the start of funding.

Management Objective No. 2, Progress Reporting

Objective: The Project Director will implement a system of regular progress reporting of project activities to the Executive Board, the New Hampshire Research Coordination Unit, and the Boston Regional Office of USOE.

Management Objective No. 3, Internal Dissemination

Objective: The project director will implement an internal dissemination strategy which will inform district staff and students as to the status of on-going activities in the project.

Management Objective No. 4, External Dissemination

Objective: The project director will implement an external dissemination strategy which will inform both educators and the general public on the local, state, and national level of the project goals, objectives, and activities.

Management Objective No. 5, A Vocational Needs Assessment

Objective: The project director and vocational director and outside consultants as necessary will develop and implement an on-going needs assessment strategy for the purpose of program expansion.

Management Objective No. 6, Program Evaluation

Objective: The project director will contract an external evaluator for project evaluation services which will include both process and product assessment.

EVALUATION OF FIRST YEAR EFFORTS

The Evaluation Team

Because PROJECT BRIDGES is a multifaceted program addressing career education in grades 1-2, guidance activities in grades 1-12, in-school and out-of-school vocational programs and services to students with special needs, it was decided by the Executive Board that a team approach to evaluation was required.

CEDAR ASSOCIATES of Keene, New Hampshire was selected as the third-party evaluator through a bid process. The evaluation team assigned to this project has five members with varying expertise as described below.

Evaluator	Area of Expertise
Dr. Richard A. Gustafson, Director of CEDAR ASSOCIATES and Assistant Dean for Career Studies at Keene State College.	Dr. Gustafson has conducted a number of vocational and career education program evaluations. He is responsible for overall coordination of the evaluation effort, development of assessment techniques and writing of interim and final evaluation reports.
Mr. John Cepaitis, Vocational Director Nashua, New Hampshire	Mr. Cepaitis has extensive experience in the development and implementation of vocational programs at the secondary level. His responsibilities are to evaluate the vocational curricula and programs at the high school.
Ms. Anitra Sorenson, Learning Disabilities Consultant in Vocational Education at Lebanon High School	Ms. Sorenson has developed in-service training for vocational teachers and services vocational students with special needs. She has worked closely with the State Department of Education in this area of program development.
Mr. Orrin Laferte, Director New Hampshire High School Career Education Model, Keene State College, Keene, New Hampshire	Mr. Laferte has directed a number of large and small career education programs in Rhode Island and New Hampshire. He is a recognized expert in career education throughout New England.

Dr. Arthur Berry, Coordinator of Vocational-Technical Education University of Maine at Portland-Gorham	Dr. Berry has had extensive experience in the development and evaluation of vocational programs in many parts of the country. His experience with community based vocational education is most valuable.

Dr. Gustafson attends each meeting of the Executive Board and is on-site at least quarterly to assess progress of those components of the project for which he has responsibility. All other members of the evaluation team are on-site at least quarterly.

An evaluation design was developed by the evaluation team with consultation with the project staff. Using the project objectives and activities, indicators of success were developed by each evaluator for their component(s) of the project. This design will be refined each year based upon planned program modifications.

Memoranda are developed by each evaluator prior to his/her evaluation visit and follow-up memoranda are prepared after each visit. Semi-annual and annual evaluation reports are prepared.

Evaluation of Progress in Year 1:

Student Objective 1 - Guidance for Career Decisions - Phase I

1. Vocational Staff Workshops

   Two were held; one at the beginning of the year to introduce the staff to the cluster development portion of the project; a second was a weekend retreat for the vocational staff and some academic teachers to break down potential barriers between the two groups. This second was successful in improving understanding and communication between the two groups. As activities in themselves, both achieved their purposes, however, they are listed as part of an objective to create a grades 1-12 guidance system. They did not produce identifiable results in relation to this goal.

2. Career Progress Booklets

   Nine of these booklets are now in the printing stage. The information on them includes career information on the titled occupation and the requisite courses available in the school. The current versions are all on one reading level (fairly high level). These will be good materials to use in conjunction with a guidance system, form a good resource for that system.

3. The Guidance Gate Checklist

   The checklist has been designed and printed. It lists three in-school checkpoints and three follow-up checkpoints. It will be used for vocational students only. Its major benefit is that the student, parent, vocational instructor and guidance counselor will be forced to communicate at three points at the beginning, middle and end of the student's program, and hopefully, all will understand the process and progress of the student. While this is listed under objective number one, it is really the major activity of objective number two, and comprises a duplication when listed within this goal. It does, however, provide the skeleton for a guidance system for vocational students from the end of the tenth grade to graduation and a monitoring vehicle for that same population.

4. Operation Guidance

   The committee system called for in the Operation Guidance System is in operation and the participation of various high school faculty members is yielding positive results in their attitudes and understanding. This is an excellent example of an activity that obviously is yielding results in the creating of motivation among teachers to become involved in career education. It has yielded four sets of guidance activities and one planned activity this year. All, however, tend to be activities that are external to the normal school operations and as such are not infusions. Continued use of this mechanism should yield positive results over the three years of the project and hopefully the end product will be a series of on-going career decision making activities for all high school students.

5. Grade 10 Language Arts/Social Studies Team Curriculum

The staff has decided to utilize the above Operation Guidance Task Force (committee) as the vehicle for creating infusion. Therefore, no activities have taken place in this item and none are predicted. As a practical adjustment to the realities of the high school this decision to change the vehicle for infusion is quite appropriate.

6. Career Awareness - Update Presentations

The staff decided against this activity as an on going orientation of the faculty and none were held.

7. Advisor/Advisee System

While this activity is not part of the proposal, the PROJECT BRIDGES staff seems to have been instrumental in introducing an Advisor/Advisee System which will be piloted with next year's Freshman class. If proper orientation takes place for the teachers involved and definite responsibilities are outlined, this system will ultimately achieve the overall goal of developing the high school level system.

Student Objective 2 - Guidance for Vocational Preparation - Phase II

This objective provides for a guidance system that will be developed and implemented for high school level vocational students and it will include a placement and follow-up system.

The implementation plan and staff feedback indicates the major vehicle of this system will be the guidance gate checklist and the personal guidance advisory committee. The other activities relate to a guidance system but it is not clear how all seven constitute a unified system.

1. In-service Activities

See comments under objective one. This is a duplication of the activities described under Vocational Staff Workshops.

2. Guidance Advisory Committee

At the beginning of the year the Building Trades Instructor held two group meetings for parents and students during which he and the counselor described that program. This is the only evidence of an activity related to implementation of the Guidance Advisory Committees. When the Guidance Gate Checklist is implemented, it should insure that the Guidance Advisory Committee structure is implemented.

3. Guidance Gate Checklist

This has been described under objective number one. As stated there it does comprise the first evidence of a Vocational Guidance Monitoring System. It is slated to be implemented in September, 1976.

4. Parent/Student/Staff Meetings

These are essentially the same as the Guidance Advisory Committees, and as listed here, are a second stating of that activity and not a separate function. It seems that individual meetings of the Guidance Advisory Committees will take place only when necessary. Most GAC meetings are expected to be group meetings of the type described in this activity.

5. Industry/Business/Education Seminars

No plans were made to implement these during this project year, and this activity has been eliminated from the second year plan.

6. Guidance Advisory Committee - Role in Placement

The Guidance Gate Checklist provides for involvement of parents, counselor, instructor and student at the end of the program in helping the student make a transition to further education or work. If this is properly implemented, then the G.A.C. will be involved in placement; however, no activities have as yet taken place in this area.

7. Graduate Follow-up Data

A follow-up study has been commissioned for graduates of the classes of 1971, 72, 75. A system has been selected and a phone follow-up is occuring in June.

Student Objective 3 - Occupational Preparation within the School

1. and 2. The Vocational program offering appraisal and review took place by having each teacher and department head review the written description in the program of studies booklet and then rewrite the description wherever they flet it was appropriate Discussion took place with Vocational Director regarding present offerings and future plans. Teacher input regarding expansion options in the five clusters was recorded through individual meetings and student input was accomplished via the teachers at those meetings. This was the extent of the needs assessment and review conducted by staff in terms of the necessary changes that they were able to observe. There was no formal written documentation of these activities.

3. and 4. Vocational Program Modifications

Curriculum modifications were proposed in each of five cluster areas. Each was at a different stage of completion as of June 8, 1976.

Building Trades has been approved for program expansion with a written craft committee endorsement of training and purchasing equipment. The area of expansion is in the operation of heavy equipment.

Each area does have a job brief with a job description and Dictionary of Occupational Title number. Goal statements are not included and are left open to interpretation. The correlations of staff and resources is also left open for one's interpretation. As a mini course Small Boat Building and Repair has been offered; however, no curriculum has been developed nor has an endorsement of the advisory committee been received or sought.

Communications and Media has been approved for program expansion with a written craft committee endorsement. This will be an introductory course in video tape production.

The labor needs assessment is global and may be difficult for students and the faculty to interpret to help one formulate career goals. The curriculum provided an outline but no goals nor objectives. Also missing were suggested activities, staffing, facility description, on-going operational costs, and integration strategies of resources, equipment and staff.

Food Service in the Hospitality and Recreation cluster has the initial work done for documenting the labor needs in this area. However, the area of proposed expansion, craft committee endorsement, and other industry endorsement have not been acocmplished.

Yet to be developed is the curriculum which will include the abstract of the cluster with appropriate descriptions and Dictionary of Occupational Title number, goal statements, course objectives, suggested activities, staffing requirements, facility design and on-going operational costs.

The Agri-Business and Natural Resources cluster of the Vocational Agriculture program has the preliminaries of a labor needs analysis completed. The curriculum includes general overview, job definitions with job briefs and job descriptions with Dictionary of Occupational Title number. Goal statements are included with the major objectives and suggested activities. Also included is a list of major resources areas and how staff and facilities might be used including types of equipment which might be integrated. However, no endorsement of the advisory committee has been received.

The Business and Office cluster has proposed expansion in Computer Studies through the Math Department with little or no input from the Business Department. No evidence exists that a functional advisory committee exists. The data on labor analysis seems rather broad for student and staff interpretation for career planning. The curriculum does meet the guidelines of providing for an abstract, job description, goal statements, major course objectives, suggested activities, staffing, facilities, equipment, operational costs and description of time restraints, but was not rewritten to follow the approved format.

5. Study of Out-of-School Youth

No written documentation of an out-of-school youth needs assessment was in evidence as requested by the evaluator.

Student Objective 4 - Occupational Preparation within the Community

The project did carry out four (4) of the five (5) major activities listed in the 1975-76 evaluation design, and all six (6) items listed under the assessment method were used by the evaluator in reviewing objective achievement.

1. Workshop for staff

Support was sought for PROJECT BRIDGES through personal contacts by the project director and two (2) workshops were held on September 2 and October 1. These were designed to orient school personnel to the scope and purposes of PROJECT BRIDGES, and brochures on the project were distributed.

2. Identification of Community Training Sites

The project director and vocational counselor presented the concept of PROJECT BRIDGES to the community through presentations to the Kiwanis Club, Lions Club and personal contract with business and industry. Twenty-six (26) community training sites were identified and twenty-five (25) task analyses for each occupational area were completed. Each task analysis consisted of the following items:

1. Job Description
2. Identification of Occupation
3. Major responsibilities and percentage of time devoted to each
4. Task listing for each responsibility including steps or processes to be utilized within each.

3. Workshops for Community Site Trainers

Instructor training was conducted on February 17-19 by Professor Richard Carter and Paul Davis of the University of Maine at Portland-Gorham. Seventeen (17) individuals participated in the sessions and all (100%) felt the workshop objectives were met, and activities were sufficient to permit them to function as community site instructors.

Training was not deemed necessary for those individuals serving as instructors at the National Guard sites, as training is seen as an on-going part of their occupational role or job.

4. Students placed in Community Training Sites

Students were informed of the concept of PROJECT BRIDGES through the project director and vocational counselor. A survey was conducted of all juniors and seniors at Somersworth High School in order to determine interest and to serve as a basis for potential site selection. Ninety-two (92) students, or approximately 25% of the student body, expressed an interest in community site training.

Twenty-six (26) students were selected and placements made by Michael Cummings through the counseling office. Factors taken into consideration in placement were:

1. Student needs and interests
2. Potential benefits of in-school versus out-of-school training
3. Seniors were given preference
4. Matching of students to job and instructor.

A flexible schedule was established permitting students to obtain community training. Students spent an average of ten (10) hours per week on site consisting of approximately two (2) hours per day, five (5) days per week. Times were flexible and related to student availability, instructor or trainers availability, and the nature of the training.

Five (5) on-site visitations were made to community training sites, and an additional nine (9) were investigated as to program, instructor training and student involvement.

All investigation and review indicated general satisfaction with the program. Students found it realistic and were motivated, while trainers expressed an interest in a workbook or student manual for use in their training, all all trainers indicated that they would continue to support the project but desired input into the student selection process.

Student Objective 5 - Career Preparation Articulation

This objective provides for a continum of common experiences for students in the elementary and middle school grades to make them more aware of, and to allow them to explore careers.

The plan to do this is through the development and/or purchase of awareness materials at the elementary level and hands-on exploratory materials in the middle school in the cluster areas for which the project is responsible.

Because of the nature of public educational hierarchy and the priority level of this goal, this is an adequate plan for achieving this goal.

This year, activity in the elementary schools has been minimal. The staff has contracted elementary teachers to develop cluster boxes of information and activities.

Five cluster boxes have been worked on:

Agri-Business	Incomplete
Communication and Media	Incomplete
Business and Office	Completed
Construction	Completed
Marine Science	Completed

The quality of these boxes vary, but they do comprise a resource bank of ideas and materials which can be moved from school to school to help teachers create Career Awareness activities.

For next year, the plan is to meet with the faculties of each elementary school and help each develop a plan for their school for that year. The principals have already agreed to do this and this plan of attack shows real promise for results at the elementary level.

At the middle school, a number of career education activities had already been infused into Social Studies and Language Arts curricula. This year, the attempt was to add new hands-on activities through the medium of the Project Discovery materials. These were utilized by one teacher and evaluated positively. The plan is to put these materials into the Media Center to be used by teachers and students next year.

Activity four, under objective five, refers to the development of Career Path booklets at varied reading levels. While nine booklets are now available, none have reading levels suitable for use at the lower grades.

Student Objective 6 - Providing for Those with Special Needs

PROJECT BRIDGES has formed a solid cooperative involvement with the Strafford Learning Center. Two full-time staff members at the Center, one a vocational consultant, the second a vocational media specialist, have made a significant impact in dealing with special students in the Somersworth vocational programs.

1. Use of prescriptive process with identified students.

   The vocational consultant has adapted and adopted a series of forms for the diagnostic/prescriptive process. These forms include a referral form, observation notes, diagnostic teaching log, program description, evaluation conference notes, follow-up notes, six weeks' evaluation, and a long term follow-up report. Although this may prove to be a cumbersome series of paperwork, the forms are well-designed and will help keep track of student progress and the effectiveness of the prescribed procedures.

2. Funding for materials and services for program modification or new special programs.

   Of approximately $2,000 allocated for materials for special needs students, only about $500 has been spent. The PROJECT BRIDGES staff has not "advertised" that this money is available, but a few teachers have come with special requests for arts and crafts supplies, a name-plate maker, and miscellaneous supplies for a summer program for special needs students.

3. Workshops in special needs for vocational teachers.

   Although one meeting was held with Nancy Hartley, no special needs workshops were held. This was a conscious choice on the part of the BRIDGES staff who felt that teachers' attitudes toward organized workshops was poor. For the most part this did seem to be the feeling of the staff who commented that workshops were never specific enough to the students they worked with and were generally a waste of time.

4. Follow-up Activities for vocational teachers who were involved in the workshops.

   No workshops were held, therefore no follow-up was done.

5. Records for each prescriptive process undertaken.

   Records were not available for review and critique because of confidentiality. Several students who have been helped by Pat Theberge were interviewed, however. They seemed glad to have received the help though several of them felt that had been singled out and separate from the rest of the class. All of the students felt the help had been essential to their success in the course.

Management Component

The management component, consisting of six closely related objectives, is the direct responsibility of Ms. Susan Klaiber, the project director. While the following narrative will address the specific accomplishments related to each objective, it is the judgment of the evaluation team that project management has been accomplished with skill and has been done successfully. While we will make recommendations in certain areas, the management of the project has improved as the year progressed and the project director has succeeded in effectively accomplishing all the "start-up" management tasks.

Objective 1 - Management System

The management system objective details the staffing pattern for PROJECT BRIDGES, the creation of an executive board and an advisory board. All these activities have been accomplished including a complete restructuring of the vocational advisory board system in Somersworth. Project staff have worked effectively with the executive board on policy matters and have begun to involve the advisory board in project matters.

Objective 2 - Progress Reporting

Monthly or bi-monthly progress reports have been filed, as scheduled, with the executive board and other local and state individuals. Quarterly reports, program and financial, have been made to U.S.O.E. and the executive board.

Objective 3 - Internal Dissemination

A number of awareness activities designed for Somersworth teachers, counselors, and administrators were completed during the year. These included a brief presentation to all staff in September, 1975, a project brochure, one newsletter, a meeting for vocational staff, and dissemination of executive board and advisory board minutes.

Project awareness seems to be highest with the vocational teachers at the high school and the elementary principals. Academic teachers at the high school and the middle school were generally unable to articulate the purpose of PROJECT BRIDGES.

There is room for improvement in this area and some plans (bulletin boards, video tapes, brief periodic newsletters) have been made to achieve this in year two.

Objective 4 - External Dissemination

Initial efforts in making individuals and agencies outside the Somersworth District aware of PROJECT BRIDGES has been successful.

Discussions with the State RCU Director and local vocational directors revealed they were abreast of happenings in Somersworth and could articulate the major thrust of the project.

Dissemination activities through school board presentations, newspaper articles, a newsletter, a brochure, presentations to the Somersworth service clubs, and NESDEC have been accomplished. In addition, a number of educators have visited PROJECT BRIDGES to learn first hand of its efforts.

The long range thrust here should be to identify the major project components which are to be disseminated in the future so these can be properly documented.

Objective 5 - Vocational Needs Assessment

Two major efforts in needs assessment have been accomplished during the initial year; both under the director of the guidance coordinator.

Using the materials prepared by Operation Guidance, a survey of staff, students and community members was coordinated to determine the needs for an improved career guidance program. The results of these surveys were considered by committees and specific activities (under student objectives 1 and 2) have been designed to address the needs as identifed.

A labor market analysis of the Somersworth area was completed using both primary and secondary sources of labor information. Work remains to be done in the translation of these data into specific recommendations of vocational program modifications.

Objective 6 - Third-Party Evaluation

A third-party evaluation team was contracted as a result of a bid process in the fall of 1975. Quarterly on-site evaluation visits by team members have been accomplished with the filing of semi-annual reports.

CONCLUSIONS - COMMENDATIONS - RECOMMENDATIONS

PROJECT BRIDGES has demonstrated significant levels of activity in all three areas for which student objectives are written:

Guidance
Clustering
Special Needs

It is clear that the project staff has focused its efforts during the first year at those student objectives within the clustering component, especially,

Occupational Preparation within the school, and
Occupational Preparation within the community.

Members of the evaluation team offer the following commendations and recommendations in those areas for which they have responsibility.

I. Guidance for Career Decisions - Phase I

Some evidence of a grades 9-12 guidance system is emerging, however, as yet the pattern it will follow is not clear. Excellent use of the Operation Guidance materials and techniques have been used at the high school. Below the 9th grade, no evidence of a guidance system is available.

If a true systematic approach to guidance services in grades 1-12 is to be achieved, a more definitive explanation of what such a system will look like is required. Specifically:

Who will do what to develop the system at:

the elementary level
the middle school level
the high school level

and when will they complete those elements for which they are responsible?

It is possible that PROJECT BRIDGES will not have the staff or material resources to noticeably affect guidance services in grades 1-8. If this is the

case, activities relating to the elementary and middle school should be eliminated in favor of creating a sound high school guidance program.

II. Guidance for Vocational Preparation - Phase II

The beginnings of guidance advisory committees were noted through the involvement of parents and students by the Building Trades instructor.

A guidance gate checklist designed to insure that each vocational student receives guidance services at key points during his or her passage through the vocational program. This level of organization is commendable and we look to this concept as being of interest to many other vocational programs in the state.

There remains a need to define the specific guidance services which will be provided for the student at each "gate".

Follow-up studies of graduates is one of the key components in any vocational guidance effort. Through studies of this type, invaluable information for the improvement of guidance, vocational, and academic programs can be obtained. PROJECT BRIDGES has retained individuals external to the project to design and conduct the first follow-up study. The evaluation team urges that in future years the follow-up system become integrated into the on-going vocational guidance effort. It this is not done, there is a real danger that it will fall by the wayside once project funding ceases.

III. Occupational Preparation within the School

Commendations:

1. The Building Construction cluster has met the criteria set forth in the agreement for program expansion and the curriculum development outline.

2. The Buisness and Office cluster is a long way toward being completed and is the best developed cluster at this time.

3. The Agri-Business, Communications and Media and the Hospitality and Recreation clusters are on their way to becoming viable.

Recommendations:

1. Develop basic goal statements in specific terms in the Building Construction cluster.

2. Use more precise verbs to try to make the program objectives measurable.

3. Demonstrate more accurately the involvement of the advisory committee in other areas outside of equipment purchases.

4. Complete the work necessary in each of the curriculum areas by September of 1976.

5. Before printing the curriculums verify that the curriculum format is the same for each area.

6. Make more of an effort to localize local job needs in the curriculums in order that they might be used by students and faculty for career planning.

7. Conduct student interest surveys to validate their interests with those curriculum modifications.

8. A curriculum for small boat building be produced.

9. Rough drafts of the skills checklist should be developed by December 31, 1976.

10. A written report of the out-of-school youth should be completed by June 30, 1976.

11. Upon completion of the student survey which is planned for June, 1976, that the results be made available to the evaluation team focusing on how students felt the skills prepared them for the job in which they were employed.

IV. Occupational Preparation within the Community

The staff of PROJECT BRIDGES should be commended for their efforts in getting the concept of community site training into an operational framework. They have achieved their objective, site identification, matching students to training and gaining community acceptance and support.

Three (3) approaches were used to evaluate community training, they were: feedback from trainers, student rating by trainer, and site evaluation by the trainee.

A feedback session with trainers was held on June 6. This provided the director with an appraisal and basis for operation in the second year of the project. Support was shown; however, some trainers were looking for more initial organization and information related to assessment of students against the task analysis.

Training station evaluation by trainees was concerned with student expectations, duties, instruction and supervision, working conditions, recommendations for improvement and plans to seek employment. Not all evaluation forms had been returned. However, those available showed enthusiasm for training, made some positive recommendations and 75% indicated they planned to look for employment in the area of their training.

Project director evaluation provided a basis for review in terms of distance time of day-week and length of training, instructor motivation, enthusiasm of trainer and trainee and potential employment opportunities.

An analysis of these factors will be considerations for retention of the training site and identification of new ones.

Recommendations

The project has been successful in identifying community sites and placing students into them. As the program evolves in its second and third year, the following concerns should be noted.

1. Logistics problems will become overwhelming with twenty (20) additional sites in the second and third year. Student selection, transportation, scheduling evaluation should be streamlined, procedures and processes identified and responsibilities delegated to other in-school staff personnel.

2. Considerations should be given to infusion of the community site training into the on-going cooperative education offerings.

3. Attention should be focused on an evaluation of student outcomes through community training. The task analysis should be utilized as a basis for the evaluation.

4. Process data should be recorded on community site identification, selection, and operating procedures in order that other communities could benefit from the PROJECT BRIDGES development project.

V. Career Preparation Articulation

A host of career education activities is currently in evidence in the elementary and middle schools. Many of these activities were initiated by an earlier career education project in Somersworth. Expansion of these activities through the development of five cluster boxes at the elementary level and the use of Project Discovery materials at the middle school is commendable.

The involvement of each elementary principal in the development of individual staff plans by each school shows real promise for the second year.

The development of nine career path booklets is also to be commended.

There remains a concern with the activity based approach to career education activities in grades 1-8 much the same as the concern for guidance activities in the same grades.

While there is realization that the focus of PROJECT BRIDGES is at the high school level, there remains a need to provide overall structure and direction for the career guidance and career education activities at the elementary and middle school level.

VI. Providing for those With Special Needs

Progress has been made in the area of meeting the needs of special needs students in vocational education although the PROJECT BRIDGES staff has not been heavily involved in this area. The February hiring of a Vocational Consultant (Edward Crothers) and a Vocational Media Specialist (Pat Theberge) through other funding sources has made a significant impact. Several PROJECT BRIDGES objectives have been met by these people and their programs.

Thus the identification and diagnosis services for students having special needs has been accomplished through the Strafford Learning Center. PROJECT BRIDGES should now be able to concentrate on working with vocational teachers on the methods and materials they can use to teach students having special needs.

The area of special needs students has not been emphasized by the PROJECT BRIDGES staff. Not wanting to duplicate the efforts of the Strafford Learning Center is reasonable, and even more can now be accomplished. The areas specifically needing attention for the coming year are:

1. Teacher attitude needs to be improved either through the Vocational Consultant working individually with the teachers, sensitivity training, or planned workshops.

2. More use could be made of the services of Dr. Nancy Hartley of Keene State College in planning ways to inform teachers of techniques and materials appropriate for special needs students.

3. Teachers need to be made more aware of the availability and usefulness of the diagnostic/prescriptive services.

4. Available funding should be utilized through more awareness of the types of materials available. Dorothea Kitlan at Keene State College might be a helpful resource person for suggestions on materials.

Management Component

As mentioned earlier in this report, project management has been accomplished with skill and successful implementation of this component has been achieved.

The management system, including staffing and the creation of the executive board and project advisory board has been completed. Progress reporting, local and national, has been on time.

PROJECT BRIDGES in some respects has higher visibility outside the Somersworth District than within. External dissemination efforts have resulted in this situation.

There are three recommendations which are offered under the management component.

1. It is recommended that more efforts be directed to informing the staff within the Somersworth District as to the purpose of PROJECT BRIDGES. Awareness at the elementary level seems to be excellent. This is not true at the middle and high school levels.

2. It is recommended that increasing attention be given to what PROJECT BRIDGES intents to demonstrate and disseminate as a result of the three-year effort. As certain components of the project are identified (e.g. Community Training), full documentation of these components (process and product) should begin now if "hard evidence" of success is to be obtained.

3. It is recommended that the project staff study all of the formal and informal needs assessment data which has been gathered (or will be gathered in the near future) in terms of its impact on program planning. The translation of this information into program development priorities is the only way in which the data gathering effort can be justified.

ACCESSION NUMBER: VT103574

TITLE: FOLLOW-UP SURVEY 1975 GRADUATES. JOB PLACEMENT AND FOLLOW-UP COMPONENT. CAREER EDUCATION PROJECT.

DESCRIPTOR: *GRADUATE SURVEYS; *VOCATIONAL FOLLOWUP; CAREER EDUCATION

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 105P.; RELATED DOCUMENTS VT 103 551 AND VT 103 572 AND VT 103 573 AND VT 103 459 THROUGH VT 103 466 AND VT 103 468 IN THIS ISSUE.

ABSTRACT: AS PART OF THE CAREER EDUCATION PROJECT HOUSED AT STATE FAIR COMMUNITY COLLEGE, THE JOB PLACEMENT AND FOLLOWUP COMPONENT CONDUCTED A TELEPHONE FOLLOWUP SURVEY OF THE 1975 HIGH SCHOOL GRADUATES OF THE 10 PARTICIPATING MISSOURI SCHOOL DISTRICTS. OF THE 795 GRADUATES, 741 (93.2 PERCENT) WERE CONTACTED. OF THE RESPONDENTS, 30 PERCENT WERE EMPLOYED FULLTIME OR PART-TIME, 14.1 PERCENT WERE WORKING AND CONTINUING THEIR EDUCATION, 31.9 PERCENT WERE ENROLLED IN A POSTSECONDARY INSTITUTION OR TRAINING FACILITY, 6.4 PERCENT HAD ENLISTED IN THE ARMED FORCES, 4.9 PERCENT WERE HOUSEWIVES, AND 5.3 PERCENT WERE UNEMPLOYED OR NOT SEEKING WORK. THE SURVEY ALSO REVEALED THAT A HIGHER PERCENTAGE OF MALES WERE EMPLOYED WHILE A HIGHER PERCENTAGE OF FEMALES WERE ENROLLED IN A POSTSECONDARY INSTITUTION. A COMPARISON OF LARGE VERSUS SMALL SCHOOL GRADUATES INDICATED THAT A HIGHER PERCENTAGE OF LARGE SCHOOL GRADUATES WERE ENROLLED IN FURTHER EDUCATION. IN REVIEWING THE LIST OF EMPLOYERS AND A LIST OF POSTSECONDARY INSTITUTIONS ATTENDED, IT WAS FOUND THAT VERY FEW GRADUATES LEFT THE STATE FOR EMPLOYMENT OR POSTSECONDARY TRAINING. APPENDED MATERIAL INCLUDES THE SURVEY INSTRUMENT, LIST OF WORKSHOP PARTICIPANTS, TELEPHONE CALLERS' SCRIPT, SURVEY CODING INFORMATION, AND LISTS OF EMPLOYERS AND POSTSECONDARY INSTITUTIONS ATTENDED. (AUTHOR/NJ)

INSTITUTION NAME: STATE FAIR COMMUNITY COLL., SEDALIA, MO.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT 103 574

OCT 22 1976

BEST COPY AVAILABLE

FOLLOW-UP SURVEY

1975 GRADUATES

CAREER EDUCATION PROJECT

JOB PLACEMENT AND FOLLOW-UP COMPONENT
STATE FAIR COMMUNITY COLLEGE
SEDALIA, MISSOURI 65301

CE 12999
Copy 1 of 2

FOREWARD

THE PURPOSE AND VALUE OF FOLLOW-UP STUDIES IS TO PROVIDE US WITH DATA TO EVALUATE PROGRAMS AND DETERMINE IF WE ARE MEETING OUR OBJECTIVES. THIS SYSTEM OF "ACCOUNTABILITY" COULD BE THE ULTIMATE TEST OF WHERE WE ARE AND WHERE WE ARE HEADED.*

The telephone follow-up survey of the 1975 high school graduates was conducted with the help and cooperation of the following individuals:

Harold Finke, Counselor
Green Ridge High School
Green Ridge, MO 65332

Carleda Williams, Counselor
Lincoln High School
Lincoln, MO 65338

Judy Rodgers, Counselor
Smithton High School
Smithton, MO 65350

H. N. Branson, Counselor
Smith-Cotton High School
Sedalia, MO 65301

Sharon Goth, Counselor
Sacred Heart High School
Sedalia, MO 65301

Jay D. Fajen, Counselor
Cole Camp High School
Cole Camp, MO 65325

William McGuire, Counselor
Northwest High School
Hughesville, MO 65334

Bill Gott, Counselor
Warsaw High School
Warsaw, MO 65355

Kay Sparks, Counselor
La Monte High School
La Monte, MO 65337

Madelyn Elliot, Counselor
Marshall High School
Marshall, MO 65340

Dr. James L. Navara, Director
Career Education Project
State Fair Community College
Sedalia, MO 65301

Dr. Jane Bucks, Associate Professor
Central Missouri State University
Warrensburg, MO 64093

Jerald L. Morrison, Specialist
Job Development and Follow-Up
Career Education, SFCC
Sedalia, MO 65301

Dale Dieckhoff, Applications Programmer
Central Missouri State University
Warrensburg, MO 64093

The activity which is the subject of this report was supported in whole or in part by the U. S. Office of Education, Department of Health, Education and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education, and no official endorsement by the U. S. Office of Education should be inferred.

*Raymond A. Wasil, Model for Implementation of School Follow-Up System, Akron, OH.

TABLE OF CONTENTS

	Page
Foreward	i
Table of Contents	ii
List of Tables	iii & iv
Chapter I	1
Introduction	1
Purpose of the Study	2
Chapter II-Design of Study	3
Development of Survey Instrument	3
Population	6
Administration of Survey Instrument	6
Data Coding	7
Data Analysis	8
Chapter III	9
Analysis of Data	9
Chapter IV	49
Summary	49
Comparison of 1974 and 1975 Graduates	52
Recommendations	54
Appendix A Telephone Follow-Up Survey Instrument	55
Appendix B Workshop Participants	59
Appendix C Telephone Callers Script	63
Appendix D Survey Coding Information	71
Appendix E Employers of 1975 Graduates	93
Appendix F Post-Secondary Institutions Attended by 1975 Graduates	103

LIST OF TABLES

Table		Page
I	Results of Telephone Follow-up Survey (All Graduates)	10
II	Comparison of Large vs. Small Schools' Graduates	11
III	Results of Telephone Follow-up Survey (Single Males)	13
IV	Results of Telephone Follow-up Survey (Married Males)	15
V	Results of Telephone Follow-up Survey (Single Females)	16
VI	Results of Telephone Follow-up Survey (Married Females)	17
VI-A	Results of Telephone Follow-up Survey (Male & Female)	18
VII	1975 Graduates by Type of Post-Secondary Enrollment and Involvement in the World of Work (All Graduates)	20
VIII	1975 Graduates by Type of Post-Secondary Enrollment and Involvement in the World of Work (Males)	21
IX	1975 Graduates by Type of Post-Secondary Enrollment and Involvement in the World of Work (Females)	22
X	Type of Post-Secondary Institutions 1975 Graduates are Now Enrolled in by High School (All Graduates)	23
XI	Type of Post-Secondary Institutions Graduates are Now Enrolled in by High School (Males)	25
XII	Type of Post-Secondary Institutions Graduates are Now Enrolled by High School (Females)	26
XIII	Responses by High School to the Question "How Did You Locate Your First Job After Graduating?"	27
XIV	Responses by High School to the Question "How Did You Locate Your First Job After Graduation?" (Males)	29
XV	Responses by High School to the Question "How Did You Locate Your First Job After Graduation?" (Females)	30
XVI	Results of Telephone Follow-up Survey Type of Occupation Now Engaged In By High School (All Graduates)	32
XVII	Results of Telephone Follow-up Survey Type of Occupation Now Engaged In by High School (Males)	33
XVIII	Results of Telephone Follow-up Survey Type of Occupation Now Engaged In by High School (Females)	34

LIST OF TABLES (cont'd)

Table		Page
XIX	Results of Telephone Follow-up Survey Type of Occupation Now Engaged in by How First Job was Located (All Graduates)	36
XX	Results of Telephone Follow-Up Survey Type of Occupation Now Engaged in by How First Job was Located (Males)	37
XXI	Results of Telephone Follow-Up Survey Type of Occupation Now Engaged in by How First Job was Located (Females)	38
XXII	Results of Telephone Follow-Up Survey Type of Occupation Now Engaged in by Zip Code (All Graduates)	39
XXIII	Results of Telephone Follow-Up Survey Type of Occupation Now Engaged in by Zip Code (Males)	41
XXIV	Results of Telephone Follow-Up Survey Type of Occupation Now Engaged in by Zip Code (Females)	42
XXV	Results of Telephone Follow-Up Survey Location of Residence by High School	44 45 46
XXVI	Comparison of Post Graduation Plans with Follow-Up Results	47
XXVII	Comparison of Post-Secondary Institutions attended by High School	48

CHAPTER I

INTRODUCTION

In the summer of 1973, State Fair Community College received a grant from the United States Office of Education, funded through Part D, Public Law 90-576, to implement a career education program in a three-county, ten school district area in Mid-Missouri. The school districts involved include Warsaw, Lincoln, and Cole Camp in Benton County; Green Ridge, La Monte, Smithton, Sacred Heart, Hughesville (Northwest), and Sedalia #200 (Smith-Cotton) in Pettis County, and Marshall in Saline County.

One component of the Career Education Project is the Job Development, Placement, and Follow-Up component with given responsibilities of follow-up activities of high school graduates from these ten school districts.

In September and October 1973, base-line data was gathered from the 1974 high school seniors as to what they planned to do after they graduated from high school. This data was used to implement the job development and placement portion of the Career Education Project. Results of these surveys may be found in the High School Teachers Survey, January 8, 1974; the High School Counselor Survey, January 23, 1974; and the Area High School Senior Survey Results, January, 1974. In order to implement the follow-up portion of the project an initial telephone follow-up survey was conducted in January, 1975, nine months after the 1974 seniors had graduated from high school. The results of the initial telephone follow-up survey may be found in Follow-Up Survey 1974 Graduates. No attempt was made to compare the data gathered in September and October, 1973, with the data gathered in January, 1975.

During the second year of the Career Education Project, the Job Placement and Follow-Up Component continued to carry out its given responsibilities. Many changes and revisions were made to improve service to students, schools

and employers. In January 1975, baseline data was gathered from each 1975 senior to assist in job development for and placement of the 1975 graduates.

This data was also collected to assist with the follow-up activities outlined in the project proposal. This telephone follow-up survey was again undertaken nine months after the class of 1975 had graduated, in January 1976. The survey remained basically the same, however, a computer service was employed to assist in tabulation and report preparation.

One additional change from the follow-up survey of the 1975 graduates will be the inclusion of some baseline data of the class of 1975 and correlation of this data with the follow-up survey results.

PURPOSE OF THE SURVEY

The primary purpose of the survey was to follow-up the 1975 high school graduates from the ten school districts.

The objectives of the follow-up survey were:

(1) To survey the 1975 high school graduates from the ten school districts nine months after graduation.

(2) To analyze, compile and report the results of the follow-up survey to participating schools and other interested parties.

(3) To use the results of the survey for program development, implementation, and evaluation.

(4) To improve upon and report any major differences from the results of the Follow-Up Survey of 1974 Graduates.

CHAPTER II

DESIGN OF STUDY

Development of Survey Instrument

Development of the telephone follow-up survey instrument began two years ago. It was first used in the Follow-Up Survey of 1974 Graduates, revised and improved this year for use in the survey of 1975 graduates.

During the 1973-74 school year, the Career Education Job Placement Specialist surveyed the participating guidance counselors to determine what job development, placement and follow-up activities were being conducted by the ten participating school districts. That survey revealed that only two schools (Smith-Cotton and Marshall) were involved in one-year follow-up studies of their graduates.[1] That fact, along with USOE evaluation guidelines spelling out the necessity of follow-up activities for federally funded Career Education Projects prompted the Job Placement Specialist to research materials from different states Washington, Missouri, Virginia, Minnesota, Ohio, Arizona, Florida, and others to determine what types of follow-up studies of high school graduates had been conducted in the past.

Many of the follow-up studies that had been conducted were for vocational-technical high school graduates and assessed the value of the vocational-technical program in their area or state.

None of the follow-up studies reviewed were designed to follow-up all high school graduates one year after graduation within the state of Missouri. The Missouri State Department of Education conducted a follow-up survey of selected Missouri high school graduates five years after graduation during 1973. However, this survey has not been continued.

---

[1] High School Counselor Survey, January 23, 1974, Career Education Project, State Fair Community College, Sedalia, MO 65301.

Marshall and Smith-Cotton high schools had completed one year follow-up studies of their respective graduates for several years and their follow-up instruments were considered.

Information about follow-up surveys was presented to eight participating high school guidance counselors and designated representatives at a Job Development, Placement and Follow-Up Workshop on November 20, 1974. At that workshop, initial survey objectives were developed.

The main objective of the 1974 survey was to contact, by telephone, each graduate and find out "What they are presently doing." Other objectives included:

1. To locate former graduates and let them know that their alma mater was still interested in them.
2. To determine which students are involved in the world of work.
3. To identify employers of 1974 graduates.
4. To determine which students were involved in post-secondary education programs.
5. To determine which students in post-secondary education were also involved in the world of work.
6. To determine which students obtained employment through their high school counselor and/or the Career Education Project Placement Service.
7. To determine trends and graduate flows to post-secondary institutions.

Questions to obtain information to achieve the above objectives were generated from questions asked in other follow-up studies and redesigned to meet the needs of the 1974 telephone follow-up survey.

The survey of 1974 graduates was conducted in January 1975. The results, of the Follow-Up Survey of 1974 Graduates were presented to participating high school guidance counselors, superintendents and principals at a Job Development, Placement Follow-Up Workshop on April 16, 1975. During that workshop, problems in the 1974 instrument were discussed and additional information was deemed necessary. The objectives and instrument were revised and approved by each

school for use in the follow-up of 1975 graduates. At that time, each school also made a commitment to conduct the 1975 follow-up survey.

The primary objective of the 1975 follow-up survey remained essentially the same; to contact, by telephone, each graduate or a responsible adult and find out "What are you (the graduate) doing now?" Other objectives that remained unchanged were:

(1) To locate former graduates and let them know that their alma mater was still interested in them.

(2) To determine which students are involved in the world of work.

(3) To identify employers of the 1975 graduates.

(4) To determine which students were involved in post-secondary education and/or training programs.

(5) To determine which students involved in post-secondary education were also involved in the world or work.

(6) To determine trends and graduate flows to post-secondary institutions.

Several additional objectives of the survey were added:

(7) To determine how graduates located their first job after graduation.

(8) To determine the type of occupation (by USOE cluster) graduates are are engaged in.

(9) To determine the mobility patterns of graduates.

(10) To determine the marital status of graduates nine months after graduation.

The survey instrument was revised to achieve the above objectives. A copy of the follow-up survey instrument used for 1975 graduates may be found in Appendix A.

Shortly after the survey instrument was developed the Central Missouri State University Computer Service was contacted and engaged to develop a computer program to tabulate and assist in the preparation of data to meet the objectives of the 1975 follow-up survey. During the summer of 1975 the computer program was written, tested and modified.

On December 16, 1975 a Job Development and Follow-Up workshop was attended with representatives from each of the participating schools. A list of workshop participants are included in Appendix B.

During the workshop on December 16, the survey objectives were again discussed and agreed upon. The survey instrument was revised and discussed along with procedures and directions for completing the telephone follow-up forms. During the workshop the computer program analyst presented information about the computerization of the responses, tabulation and analysis of the data.

POPULATION

The population for this survey was the 795, 1975 graduates from the ten participating high schools involved with the Career Education Project at State Fair Community College. These districts included Warsaw, Lincoln, and Cole Camp in Benton County; Green Ridge, La Monte, Smithton, Sacred Heart, Northwest, and Smith-Cotton (Sedalia) in Pettis County; and Marshall in Saline County.

ADMINISTRATION OF THE SURVEY INSTRUMENT

Methods of administration were discussed as they had been on November 20, 1974, and using the telephone was decided to be the most appropriate method. The telephone was chosen again because:

1. A higher rate of response was anticipated than by other methods.
2. By using the telephone, the interviewer could clarify unclear responses.
3. There was less anticipated cost using the telephone as compared to mailing the survey instrument.

After approval of the survey instrument and the telephone as the administrative device, a designated individual was given the responsibility of coordinating and/or conducting the administration of the survey within their school system.

In seven schools, the guidance counselor or counselors telephoned and talked with each graduate or a responsible adult to complete the survey instrument. At Northwest High School, the high school principal personally talked with each

graduate and completed the survey questions. At Smithton High School the guidance counselor was assisted in contacting the graduates and completing the survey questionnaire by work study students. At Warsaw High School, two students in an English class did the telephoning and completed the survey forms under the direction of the guidance counselor.

To facilitate consistent responses and to provide a guide for interviews, a detailed telephone callers script was prepared and is included in Appendix C.

All respondents except Green Ridge and Northwest were contacted during January 1976. Green Ridge and Northwest were contacted in February.

Once the survey instruments were completed, each school's designated staff member returned their surveys to the Job Placement Specialist for review and preparation for computerization. Each survey form was reviewed by the Placement Specialist and checked for completeness of information.

DATA CODING

Individual student responses from the telephone follow-up survey forms were coded on green "Questionnaire Coding Forms" as illustrated in Appendix D. The "Questionnaire Card Format" and "Directions for Transferring the Information from the Questionnaire to the Coding Form" are included in Appendix D.

Information about graduates employers was coded on the orange "Employer Coding Form" which is also included in Appendix D.

Graduates job title was coded by occupational cluster from the USOE fifteen occupational clusters. The "Occupational Cluster Guide" sheet is also included in Appendix D.

Information about post-secondary educational and training institutions was coded on the canary "College Coding Form" included in Appendix D. "Institution ID Codes" are also included in Appendix D.

Graduates enrolled in post-secondary educational or training programs were codified by "Major Coding" and are included in Appendix D.

Graduates current address was coded by zip code using the National Zip Code Directory for all addresses except those graduates not located who were assigned a zip code 00000; U. S. Army 00010; U. S. Navy 00020; U. S. Air Force 00030; U. S. Marine Corps 00040; Cork, Ireland 00001; and Lille, France 00002.

After all of the telephone follow-up survey forms had been received and coded they were sent to the computer program analyst at CMSU and keypunched by the CMSU computer service for tabulation and analysis.

DATA ANALYSIS

On March 1, 1976, the Central Missouri State University Computer Service received the coded individual responses and processed them for tabulation.

To accomplish the objectives of this survey tables of frequency distributions were constructed for each item or groups of items. Percentages of responses to total responses were computed in each area.

Separate frequency distributions and percentages were constructed for single males, married males, single females and married females on some survey questions. On several questions separate frequency distributions and percentages were computed for males and females. In most cases, distribution and frequency tables were set up so comparisons of graduates from different schools could be made. However, in the analysis of the data, very few comparisons between graduates of different schools were made. Analysis and comparisons between schools were not made because of the myriad factors that influence graduates career decisions and plans.

In addition, distributions were computed using the different combinations of work and school. These distributions were then used to clarify how graduates in related or different classifications responded to the survey questions.

Graduates current address was coded by zip code using the National Zip Code Directory for all addresses except those graduates not located who were assigned a zip code 00000; U. S. Army 00010; U. S. Navy 00020; U. S. Air Force 00030; U. S. Marine Corps 00040; Cork, Ireland 00001; and Lille, France 00002.

After all of the telephone follow-up survey forms had been received and coded they were sent to the computer program analyst at CMSU and keypunched by the CMSU computer service for tabulation and analysis.

DATA ANALYSIS

On March 1, 1976, the Central Missouri State University Computer Service received the coded individual responses and processed them for tabulation.

To accomplish the objectives of this survey tables of frequency distributions were constructed for each item or groups of items. Percentages of responses to total responses were computed in each area.

Separate frequency distributions and percentages were constructed for single males, married males, single females and married females on some survey questions. On several questions separate frequency distributions and percentages were computed for males and females. In most cases, distribution and frequency tables were set up so comparisons of graduates from different schools could be made. However, in the analysis of the data, very few comparisons between graduates of different schools were made. Analysis and comparisons between schools were not made because of the myriad factors that influence graduates career decisions and plans.

In addition, distributions were computed using the different combinations of work and school. These distributions were then used to clarify how graduates in related or different classifications responded to the survey questions.

CHAPTER III

ANALYSIS OF DATA

Of the 795 graduates of the ten school district, 741 or 93.2 percent were contacted using the telephone technique. Only 59 or 6.8 percent of the graduates could not be contacted by telephone or through a responsible respondent.

Table I, page 10 shows that of the 795 graduates 238 or 30.0 percent were employed, 112 or 14.1 percent were working and going to school, 254 or 31.9 percent were enrolled full or part-time in post secondary educational or training institutions, 51 or 6.4 percent were in the military service, 4.9 percent were housewives, 5.3 percent were unemployed and 6.8 percent could not be located.

In analyzing the data, the two largest school systems, Smith-Cotton in Sedalia comprised 42.6 percent of the total population and Marshall High School in Marshall comprised 18.7 percent of the total population. Therefore, 61.4 percent of the population was from the two largest school systems. For comparison purposes, the populations of Smith-Cotton and Marshall have been compared to the populations of the eight smaller high schools.

Table II, page 11 shows the difference between the two populations. The percent of graduates 31.6 percent going directly into the world of work is greater in the eight smaller schools than the 28.9 percent in the larger schools. Appendix E lists employers of all 1975 graduates.

A greater percent of the larger schools graduates 16.6 percent were working while also enrolled in post-secondary education or training, than of the smaller schools 10.1 percent. A larger percentage of graduates were enrolled in post-secondary education or training from the larger schools 48.8 percent than in the smaller schools, 41.7 percent.

TABLE I
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
1975 HIGH SCHOOL GRADUATES
ALL GRADUATES

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed--Seeking	Unemployed--Not Seeking	Not Located	Total	Percentage
WARSAW	19	1	1	0	0	2	0	18	0	1	1	0	0	0	4	0	4	2	7	60	7.5
LINCOLN	12	0	1	0	0	3	0	11	3	0	1	0	0	0	7	0	0	0	1	39	4.9
COLE CAMP	17	0	0	0	0	3	0	14	3	0	0	1	0	0	3	0	1	2	7	51	6.4
GREEN RIDGE	13	0	0	0	0	1	1	12	1	0	0	0	0	0	0	0	2	1	1	32	4.0
LA MONTE	7	0	1	0	0	2	0	10	0	0	1	0	0	0	3	0	1	0	0	25	3.1
SMITHTON	8	0	0	0	0	6	0	15	0	1	2	0	0	0	0	3	2	0	4	41	5.2
SACRED HEART	5	0	0	0	0	7	0	11	0	0	1	0	0	0	0	0	3	0	1	28	3.5
NORTHWEST	13	2	0	1	1	2	0	5	0	0	0	0	0	0	4	1	1	0	1	31	3.9
SMITH-COTTON	78	9	5	14	2	54	0	83	7	3	7	9	0	0	13	1	20	3	31	339	42.6
MARSHALL	52	2	1	1	0	4	0	74	1	0	8	0	0	0	5	0	0	0	1	149	18.7
TOTAL	224	14	9	16	3	84	1	253	15	5	21	10	0	0	39	5	34	8	54	795	100.0
PERCENTAGE	28.2	1.8	1.1	2.0	0.4	10.6	0.1	31.8	1.9	0.6	2.6	1.3	0.0	0.0	4.9	0.6	4.3	1.0	6.8	100.0	

TABLE II
COMPARISON OF LARGE VS. SMALL SCHOOLS GRADUATES
1975 HIGH SCHOOL GRADUATES
ALL GRADUATES

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed--Seeking	Unemployed--Not Seeking	Not Located	Total	Percentage
LARGER SCHOOLS																					
SMITH-COTTON	78	9	5	14	2	54	0	83	7	3	7	9	0	0	13	1	20	3	31	339	69.5
MARSHALL	52	2	1	1	0	4	0	74	1	0	8	0	0	0	5	0	0	0	1	149	30.5
TOTAL	130	11	6	15	2	58	0	157	8	3	15	9	0	0	18	1	20	3	32	488	61.4
PERCENTAGE	26.6	2.3	1.2	3.1	0.4	11.9	0.0	32.2	1.5	0.6	3.1	1.8	0.0	0.0	3.7	0.2	4.1	0.6	6.6	100.0	
SMALLER SCHOOLS																					
WARSAW																					
LINCOLN																					
COLF CAMP																					
GREEN RIDGE																					
LA MONTE																					
SMITHTON																					
SACRED HEART																					
NORTHWEST																					
TOTAL	94	3	3	1	1	26	1	96	7	2	6	1	0	0	21	4	14	5	22	307	38.6
PERCENTAGE	30.6	1.0	1.0	0.3	0.3	8.5	0.3	31.3	2.3	0.7	2.0	0.3	0.0	0.0	6.8	1.3	4.6	1.6	7.2	100.0	
																					100.0

Of the 307 graduates from the eight smaller schools, 16 or 5.3 percent enlisted in the military service compared to 35 or 7.1 percent of the 488 graduates from Marshall and Sedalia. In the large schools, 3.7 percent of the graduates were housewives compared to 6.8 percent of the smaller school graduates.

In terms of unemployment, 21 or 4.3 percent of the graduates were unemployed from Marshall and Sedalia as compared with 18 or 5.9 percent from the smaller schools.

Of the 54 respondents that could not be located, 31 were from Smith-Cotton 7 from Warsaw, 7 from Cole Camp, 4 from Smithton, and Lincoln, Green Ridge, Sacred Heart, Northwest and Marshall each could not locate one graduate. La Monte was the only school able to locate all of their graduates.

In order to analyze the data according to sex and marital status tables III, IV, V, and VI were constructed. Of the 795 graduates there are 400 or 50.3 percent males and 395 or 49.7 percent females. More females were married 83 or 21.0 percent than males 25 or 6.3 percent.

Of the 375 single males reported in Table III, 110 or 30.9 percent were working, 60 or 16 percent were working full or part-time while they were enrolled in post-secondary education or training, 190 or 29.1 percent were enrolled full or part-time in a post-secondary institution, 44 or 11.7 percent were enlisted in the armed forces, 16 or 4.3 percent were unemployed and 7.2 percent were not located.

Table IV indicates that of the 25 married males 16 or 48.0 percent are working, one or 4.0 percent is working full time and also continuing his education, only one graduate is enrolled full time in a post-secondary institution, 4 or 16.0 percent are in the military, and 2 or 8.0 percent the married males could not be located.

TABLE III
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
1975 HIGH SCHOOL GRADUATES
SINGLE MALES

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed--Seeking	Unemployed--Not Seeking	Not Located	Total	Percentage
WARSAW	11	1	1	0	0	2	0	7	0	0	1	0	0	0	0	0	2	0	6	31	8.3
LINCOLN	6	0	0	0	0	3	0	3	2	0	1	0	0	0	0	0	0	0	0	15	4.0
COLE CAMP	11	0	0	0	0	2	0	4	1	0	0	1	0	0	0	0	0	1	3	23	6.1
GREEN RIDGE	6	0	0	0	0	0	1	5	1	0	0	0	0	0	0	0	0	0	0	13	3.5
LA MONTE	4	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	8	2.1
SMITHTON	5	0	0	0	0	3	0	5	0	1	2	0	0	0	0	2	0	0	1	19	5.1
SACRED HEART	1	0	0	0	0	5	0	3	0	0	1	0	0	0	0	0	1	0	0	11	2.9
NORTHWEST	5	1	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	10	2.7
SMITH-COTTON	39	5	4	9	1	25	0	38	6	3	7	8	0	0	0	1	10	2	17	175	46.7
MARSHALL	20	1	0	1	0	2	0	38	1	0	7	0	0	0	0	0	0	0	0	70	18.7
TOTAL	108	8	5	11	1	43	1	109	11	4	20	9	0	0	0	3	13	3	27	375	100.0
PERCENTAGE	28.8	2.1	1.3	2.9	0.3	11.5	0.3	28.8	2.9	1.1	5.3	2.4	0.0	0.0	0.0	0.8	3.5	0.8	7.2	100.0	

There is no unemployment among the married male graduates. In fact the graduates enrolled in post-secondary education are the only married male graduates not employed full time. Only two married male graduates are continuing their education. Proportionately, Lincoln and Marshall high schools have a high married male rate among their graduates.

Table V page 16 indicates that of the 312 females 78 or 25 percent are working, 50 or 16.0 percent are working and are enrolled in a post-secondary educational or training program, 138 or 44.2 percent are enrolled full or part-time in a psot-secondary instituiton, 2 or 0.6 percent have enlisted in the Army, and 21 or 6.7 percent are unemployed; 6.7 percent could not be located.

Of the 83 married females in Table VI, 27 or 32.5 percent are working full or part-time, one or 1.2 percent is working and going to school, six or 7.2 percent are enrolled in a post-secondary institution. One has enlisted in the Navy and 39 or 47.0 percent are housewives, while five or 6.0 percent are unemployed. Only 4.8 percent of the married females could not be located. We also note that proportionately more female graduates from Lincoln and Northwest High Schools are married.

Table VI indicates that almost half or 47.0 percent of the married females from the participating high schools are engaged full time in the career of homemaking, while an additional one third carry out dual roles as homemakers and employees.

Like the married males, very few married females continue their education or training 8.0 percent and 8.4 percent respectfully.

Comparing the total male to the total female population in Table VI A, we find that more males enter the world of work than females and that more females continue their education.

TABLE IV
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
1975 HIGH SCHOOL GRADUATES
MARRIED MALES

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed—Seeking	Unemployed—Not Seeking	Not Located	Total	Percentage
WARSAW	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8.0
LINCOLN	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	5	20.0
COLE CAMP	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	4.0
GREEN RIDGE	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4.0
LA MONTE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
SMITHTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4.0
SACRED HEART	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
NORTHWEST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
SMITH-COTTON	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	24.0
MARSHALL	6	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	9	36.0
TOTAL	17	0	1	0	0	0	0	1	2	0	1	1	0	0	0	0	0	0	2	25	100.0
PERCENTAGE	68.0	0.0	4.0	0.0	0.0	0.0	0.0	4.0	8.0	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	100.0	

TABLE V
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
1975 HIGH SCHOOL GRADUATES
SINGLE FEMALES

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed--Seeking	Unemployed--Not Seeking	Not Located	Total	Percentage
WARSAW	4	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	2	2	1	19	6.1
LINCOLN	0	0	1	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	9	2.9
COLE CAMP	5	0	0	0	0	1	0	9	1	0	0	0	0	0	0	0	0	1	4	21	6.7
GREEN RIDGE	6	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0	1	0	0	15	4.8
LA MONTE	3	0	1	0	0	1	0	7	0	0	0	0	0	0	0	0	1	0	0	13	4.2
SMITHTON	3	0	0	0	0	3	0	10	0	0	0	0	0	0	0	1	2	0	0	19	6.1
SACRED HEART	4	0	0	0	0	2	0	7	0	0	0	0	0	0	0	0	2	0	1	16	5.1
NORTHWEST	4	1	0	0	1	1	0	3	0	0	0	0	0	0	0	1	1	0	0	12	3.8
SMITH-COTTON	26	1	1	5	1	29	0	44	1	0	0	0	0	0	0	0	8	1	14	131	42.0
MARSHALL	21	0	0	0	0	2	0	33	0	0	0	0	0	0	0	0	0	0	1	57	18.3
TOTAL	76	2	3	5	2	40	0	138	2	0	0	0	0	0	0	2	17	4	21	312	100.0
PERCENTAGE	24.4	0.6	1.0	1.6	0.6	12.8	0.0	44.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.4	1.3	6.7	100.0	

TABLE VI
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
1975 HIGH SCHOOL GRADUATES
MARRIED FEMALE

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed—Seeking	Unemployed—Not Seeking	Not Located	Total	Percentage
WARSAW	2	0	0	0	0	0	0	1	0	1	0	0	0	0	4	0	0	0	0	8	9.6
LINCOLN	3	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	10	12.0
COLE CAMP	1	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0	1	0	0	6	7.2
GREEN RIDGE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	3.6
LA MONTE	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	4	4.8
SMITHTON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2.4
SACRED HEART	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1.2
NORTHWEST	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	9	10.8
SMITH-COTTON	8	3	0	0	0	0	0	1	0	0	0	0	0	0	13	0	2	0	0	27	32.5
MARSHALL	5	1	0	0	0	0	0	2	0	0	0	0	0	0	5	0	0	0	0	13	15.7
TOTAL	23	4	0	0	0	1	0	6	0	1	0	0	0	0	39	0	4	1	4	83	100.0
PERCENTAGE	27.7	4.8	0.0	0.0	0.0	1.2	0.0	7.2	0.0	1.2	0.0	0.0	0.0	0.0	47.0	0.0	4.8	1.2	4.8	100.0	

TABLE VIA

RESULTS OF TELEPHONE FOLLOW UP SURVEY
1975 HIGH SCHOOL GRADUATES
MALE & FEMALE COMPARISONS

	Work Full Time	Work Part Time	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/School Part Time	School Full Time/Work Part Time	School Part Time	School Full Time	Army	Air Force	Navy	Marines	Coast Guard	National Guard Reserves	Housewife	Other	Unemployed--Seeking	Unemployed--Not Seeking	Not Located	Total	Percentage
MALES																					
SINGLE	108	8	5	11	1	43	1	108	11	4	20	9	0	0	0	3	13	3	27	375	93.8
MARRIED	17	0	1	0	0	0	0	1	2	0	1	1	0	0	0	0	0	0	2	25	6.2
TOTAL	125	8	6	11	1	43	1	109	13	4	21	10	0	0	0	3	13	3	29	400	100.0
TOTAL	131		61				110		48						0	3	16		29		
PERCENT	32.8		15.3				27.7		12.0							0.8	4.0		7.4		
FEMALES																					
SINGLE	76	2	3	5	2	40	0	138	2	0	0	0	0	0	0	2	17	4	21	312	79.0
MARRIED	23	4	0	0	0	1	0	6	0	1	0	0	0	0	39	0	4	1	4	83	21.0
TOTAL	99	6	3	5	2	41	0	144	2	1	0	0	0	0	39	2	21	5	25	395	
TOTAL	105		51				144		3						39	2	26		25		100.0
PERCENT	26.5		13.0				33.4		.75						9.9	.5	6.6		6.3		

We continue to find more men enlisting in the armed forces than women. However, females from Cole Camp and Smith-Cotton enlisted in the Army and one married female from Warsaw joined the Navy.

We also continue to find more females, 6.6 percent unemployed than males 4.0 percent.

Table VII page 20 illustrates that 370 students are enrolled in a post-secondary educational or training program. We find that 69.5 percent of the graduates enrolled in post-secondary institutions are enrolled full-time and are not involved in the world of work and that only one graduate is enrolled only part-time. The remaining 30.2 percent are working while they are going to school with the majority 22.7 percent working part-time while they attend school full time.

Of the 1975 graduates 4.3 percent work full time and attend school full-time, 2.4 percent worked full time and attended school part-time and only 0.8 percent worked part-time and go to school part-time. Appendix F lists the post-secondary educational and training institutions being attended by 1975 graduates and the distribution of declared majors.

Tables VIII and IX pages 21 and 22 shows that a greater percentage of males work, 35.0 percent while attending school than females, 26.0 percent and more males worked full time while enrolled, 6.3 percent than females 2.6 percent.

Table X page 23 indicates the type of post-secondary institution the graduates are attending with 16 or 4.3 percent attending one year training programs. In Appendix F we can see that most of these programs are for practical nurses, clerical training, cosmetology, automotive technology, welding, and other programs. These programs are offered in the community college, primarily State Fair Community College and at preparatory schools. Eighty-one or 21.9 percent are enrolled in two year vocational training programs with 75 or 20.3 percent enrolled in community colleges or similar institutions and plan to transfer to a four year college to obtain a degree.

TABLE VII
1975 GRADUATES BY TYPE OF POST-SECONDARY
ENROLLMENT AND INVOLVEMENT IN THE WORLD OF WORK
ALL GRADUATES

	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/ School Part Time	Work Part Time/School Full Time	School Part Time	School Full Time	TOTAL	PERCENTAGE
ONE-YEAR SCHOOL	1	0	0	4	1	10	16	4.3
VOCATIONAL/TECHNICAL	3	5	0	28	0	45	81	21.9
TRANSFER STUDENT	4	8	3	34	0	26	75	20.3
FOUR-YEAR SCHOOL	1	3	0	18	0	175	197	53.2
OTHER	0	0	0	0	0	1	1	0.3
TOTAL	9	16	3	84	1	257	370	100.0
PERCENTAGE	2.4	4.3	0.8	22.7	0.3	69.5	100.0	

TABLE VIII
1975 GRADUATES BY TYPE OF POST-SECONDARY
ENROLLMENT AND INVOLVEMENT IN THE WORLD OF WORK
MALES

	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/ School Part Time	Work Part Time/School Full Time	School Part Time	School Full Time	TOTAL	PERCENTAGE
ONE-YEAR SCHOOL	1	0	0	0	1	1	3	1.7
VOCATIONAL/TECHNICAL	2	4	0	19	0	18	43	24.7
TRANSFER STUDENT	2	4	1	15	0	11	33	19.0
FOUR-YEAR SCHOOL	1	3	0	9	0	81	94	54.0
OTHER	0	0	0	0	0	1	1	0.6
TOTAL	6	11	1	43	1	112	174	100.0
PERCENTAGE	3.4	6.3	0.6	24.7	0.6	64.4	100.0	

TABLE IX
1975 GRADUATES BY TYPE OF POST-SECONDARY
ENROLLMENT AND INVOLVEMENT IN THE WORLD OF WORK
FEMALES

	Work Full Time/School Part Time	Work Full Time/School Full Time	Work Part Time/ School Part Time	Work Part Time/School Full Time	School Part Time	School Full Time	TOTAL	PERCENTAGE
ONE-YEAR SCHOOL	0	0	0	4	0	9	13	6.6
VOCATIONAL/TECHNICAL	1	1	0	9	0	27	38	19.4
TRANSFER STUDENT	2	4	2	19	0	15	42	21.4
FOUR-YEAR SCHOOL	0	0	0	9	0	94	103	52.6
OTHER	0	0	0	0	0	0	0	0.0
TOTAL	3	5	2	41	0	145	196	100.0
PERCENTAGE	1.5	2.6	1.0	20.9	0.0	74.0	100.0	

TABLE X
TYPE OF POST-SECONDARY INSTITUTIONS 1975 GRADUATES ARE NOW ENROLLED IN BY HIGH SCHOOL
ALL GRADUATES

	One-Year School	Vocational/Technical	Transfer Student	Four-Year School	Other	Total	Percentage
WARSAW	0	7	3	11	0	21	5.7
LINCOLN	0	5	1	8	1	15	4.1
COLE CAMP	2	7	2	6	0	17	4.6
GREEN RIDGE	1	4	2	7	0	14	3.8
LA MONTE	0	5	5	3	0	13	3.5
SMITHTON	0	6	3	12	0	21	5.7
SACRED HEART	0	2	7	9	0	18	4.9
NORTHWEST	0	5	2	3	0	10	2.7
SMITH-COTTON	12	34	50	65	0	161	43.5
MARSHALL	1	6	0	73	0	80	21.6
TOTAL	16	81	75	197	1	370	100.0
PERCENTAGE	4.3	21.9	20.3	53.2	0.3	100.0	

More than half of the graduates 53.2 percent are enrolled in four year colleges or universities pursuing their educational objectives.

Table X also indicates that of the 1975 graduates continuing their education 26.2 percent are involved in vocational training and 73.5 percent are enrolled in academic training programs.

Tables XI and XII pages 25 and 26 are comparisons of male and female responses. We note that more of the females, 6.6 percent, than males 1.7 percent have enrolled in one year vocational programs which is primarily due to the one year practical nursing and clerical programs. This shift is reversed in the two year vocational programs where we find 24.7 percent of the males and 19.4 percent of the females enrolled in two year vocational programs. Vocational enrollment is just over one fourth of the graduates for both sexes, males 26.4 percent, and females 26.0 percent.

Almost three-fourths of the 735 graduates are enrolled in academic training programs. More females 42 or 21.4 percent than males 33 or 19.0 percent began their academic training in a two year college and plan to transfer. Whereas, more males 94 or 54.0 percent, than females 103 or 52.6 percent enrolled directly in a four year educational institution.

In response to the question, how did you locate your first job after high school, Table XIII page 27 indicates that 340 of the 795 graduates responded to this question. However, it should be pointed out that this question received inconsistent responses because all graduates who were working at the time of the survey did not respond to this item. Only 298 of the 352 graduates who were working responded. There were differences among schools as is easily noted in the left hand percent column which shows that 57.1 percent of the responses came from one school, Smith-Cotton, who had only 42.6 percent of the total population. From the individual response questions, it was also evident that the question was not interpreted in the same way by each interviewer.

TABLE XI
TYPE OF POST-SECONDARY INSTITUTIONS 1974 GRADUATES ARE NOW ENROLLED IN BY HIGH SCHOOL
MALES

	One-Year School	Vocational/Technical	Transfer Student	Four-Year School	Other	Total	Percentage
WARSAW	0	4	2	4	0	10	5.7
LINCOLN	0	2	0	3	1	6	3.4
COLE CAMP	0	4	1	1	0	6	3.4
GREEN RIDGE	1	0	2	3	0	6	3.4
LA MONTE	0	3	0	0	0	3	1.7
SMITHTON	0	1	3	4	0	8	4.6
SACRED HEART	0	1	4	3	0	8	4.6
NORTHWEST	0	4	0	0	0	4	2.3
SMITH-COTTON	2	19	21	38	0	80	46.0
MARSHALL	0	5	0	38	0	43	24.7
TOTAL	3	43	33	94	1	174	100.0
PERCENTAGE	1.7	24.7	19.0	54.0	0.6	100.0	

TABLE XII
TYPE OF POST-SECONDARY INSTITUTIONS 1974 GRADUATES ARE NOW ENROLLED IN BY HIGH SCHOOL
FEMALES

	One-Year School	Vocational/Technical	Transfer Student	Four-Year School	Other	Total	Percentage
WARSAW	0	3	1	7	0	11	5.6
LINCOLN	0	3	1	5	0	9	4.6
COLE CAMP	2	3	1	5	0	11	5.6
GREEN RIDGE	0	4	0	4	0	8	4.1
LA MONTE	0	2	5	3	0	10	5.1
SMITHTON	0	5	0	8	0	13	6.6
SACRED HEART	0	1	3	6	0	10	5.1
NORTHWEST	0	1	2	3	0	6	3.1
SMITH-COTTON	10	15	29	27	0	81	41.3
MARSHALL	1	1	0	35	0	37	18.9
TOTAL	13	38	42	103	0	196	100.0
PERCENTAGE	6.6	19.4	21.4	52.6	0.0	100.0	

TABLE XIII
RESPONSES BY HIGH SCHOOL TO THE QUESTION
HOW DID YOU LOCATE YOUR FIRST JOB AFTER GRADUATION
ALL GRADUATES

	Parents	Friends	Other Relatives	Own Efforts	Newspaper Ad	Employment Service	Teacher	Counselor	Placement Specialist	Other	Total	Percentage
WARSAW	4	4	0	5	0	0	1	0	0	0	14	4.1
LINCOLN	3	0	1	1	0	0	0	0	1	0	6	1.8
COLE CAMP	6	2	2	9	0	0	0	0	1	0	20	5.9
GREEN RIDGE	1	3	2	3	0	2	0	0	0	0	11	3.2
LA MONTE	2	5	0	1	0	0	0	1	1	0	10	2.9
SMITHTON	2	2	1	2	0	0	0	0	1	0	8	2.4
SACRED HEART	2	1	0	6	0	0	0	0	0	0	9	2.6
NORTHWEST	1	2	6	8	0	2	1	0	1	0	21	6.2
SMITH-COTTON	15	47	14	49	1	9	7	3	5	44	194	57.1
MARSHALL	5	14	3	5	2	9	1	1	6	1	47	13.8
TOTAL	41	80	29	89	3	22	10	5	16	45	340	100.0
PERCENTAGE	12.1	23.5	8.5	26.2	0.9	6.5	2.9	1.5	4.7	13.2	100.0	

From the respondents 26.2 percent indicated they located their first job by their own efforts, 23.5 percent through their friends, 12.1 percent through their parents and 8.5 percent through other relatives; therefore, 70.3 percent of the graduates responding to this item located their first job through their own resources or friends or relatives. In addition, 6.5 percent indicated they located employment through the employment service. Fifteen of the 22 graduates who located their employment in this manner were working at the McGraw-Edison plant that began operation in the summer of 1975 and utilized the Missouri Job Service for all its referrals and testing.

The Placement Specialist and participating high school staff assisted 9.1 percent in locating employment with the least successful way to obtain employment was through newspaper ads which accounted for only 0.9 percent of the respondents. In addition to these 13.2 percent indicated they obtained employment through resources other than those mentioned above.

Tables XIV and XV pages 29 and 30 were constructed to show differences between male and female graduates approach to locating employment. Of the 340 respondents 181 were male and 159 were female. The largest response item for males was friends 24.9 percent whereas, the females indicated it only 22.0 percent. The largest response item for females was own efforts, 30.8 percent, while the males responded to that item only 22.1 percent.

Of the friends and relative groups, males indicated parents helped them locate their first job more frequently than females, 17.7 percent compared to 5.7 percent while on the other hand, females indicated relatives helped them slightly more, 10.1 percent compared to 7.2 percent of the males.

The Job Service office was indicated as the locating agency more frequently by females, 8.2 percent, than by males, 5.0 percent. Likewise the placement specialist was indicated by more females, 5.7 percent than males 3.9 percent as the locating agent. This is also reflected in Table XXVI page 47 which indicates that more females, 62.0 percent, than males, 37.8 percent, requested assistance

TABLE XIV
RESPONSES BY HIGH SCHOOL TO THE QUESTION
HOW DID YOU LOCATE YOUR FIRST JOB AFTER GRADUATION
MALES

	Parents	Friends	Other Relatives	Own Efforts	Newspaper Ad	Employment Service	Teacher	Counselor	Placement Specialist	Other	Total	Percentage
WARSAW	3	4	0	3	0	0	1	0	0	0	11	6.1
LINCOLN	2	0	0	0	0	0	0	0	0	0	2	1.1
COLE CAMP	6	2	1	4	0	0	0	0	0	0	13	7.2
GREEN RIDGE	0	0	2	2	0	0	0	0	0	0	4	2.2
LA MONTE	1	3	0	0	0	0	0	1	0	0	5	2.8
SMITHTON	2	1	1	1	0	0	0	0	1	0	6	3.3
SACRED HEART	1	1	0	4	0	0	0	0	0	0	6	3.3
NORTHWEST	1	1	1	4	0	0	0	0	0	0	7	3.9
SMITH-COTTON	11	27	7	21	0	5	6	1	4	25	107	59.1
MARSHALL	5	6	1	1	0	4	1	0	2	0	20	11.0
TOTAL	32	45	13	40	0	9	8	2	7	25	181	100.0
PERCENTAGE	17.7	24.9	7.2	22.1	0.0	5.0	4.4	1.1	3.9	13.8	100.0	

TABLE XV
RESPONSES BY HIGH SCHOOL TO THE QUESTION
HOW DID YOU LOCATE YOUR FIRST JOB AFTER GRADUATION
FEMALES

	Parents	Friends	Other Relatives	Own Efforts	Newspaper Ad	Employment Service	Teacher	Counselor	Placement Specialist	Other	Total	Percentage
WARSAW	1	0	0	2	0	0	0	0	0	0	3	1.9
LINCOLN	1	0	1	1	0	0	0	0	1	0	4	2.5
COLE CAMP	0	0	1	5	0	0	0	0	1	0	7	4.4
GREEN RIDGE	1	3	0	1	0	2	0	0	0	0	7	4.4
LA MONTE	1	2	0	1	0	0	0	0	1	0	5	3.1
SMITHTON	0	1	0	1	0	0	0	0	0	0	2	1.3
SACRED HEART	1	0	0	2	0	0	0	0	0	0	3	1.9
NORTHWEST	0	1	5	4	0	2	1	0	1	0	14	8.8
SMITH-COTTON	4	20	7	28	1	4	1	2	1	19	87	54.7
MARSHALL	0	8	2	4	2	5	0	1	4	1	27	17.0
TOTAL	9	35	16	49	3	13	2	3	9	20	159	100.0
PERCENTAGE	5.7	22.0	10.1	30.8	1.9	8.2	1.3	1.9	5.7	12.6	100.0	

in locating employment from the placement specialist in the spring of 1975.

Comparing males and females we note teachers were indicated as helping more males, 4.4. percent, than females, 1.3 percent, and that guidance counselors assisted, 1.1 percent of the males and 1.9 percent of the females. We note also that only females 1.0 percent indicated that they located their first job through the newspaper want ads. Table XVI page 32 was constructed from the respondents job title and coded using the fifteen occupational clusters of the U. S. Office of Education as defined in An Analysis of Fifteen Occupational Clusters Identified by the United States Office of Education.

Among the 1975 graduates we find that 56.5 percent of the graduates are engaged in occupations in three clusters: Marketing & Distribution 22.2 percent; Personal Services 19.0 percent, and Manufacturing 15.3 percent.

An additional 15 percent of the graduates working are engaged in the three additional clusters: Agri-Business 8.8 percent, Transportation 8.2 percent, and Business and Office 8.0 percent. Health 6.0 percent, Construction 5.4 percent, Communications and Media 2.8 percent, Public Service 2.3 percent, and Hospitality and Recreation 1.1 percent account for 17.6 percent of the graduates. Only two graduates 0.6 percent are employed in the Fine Arts cluster and only one graduate 0.3 percent is in Consumer and Homemaking Education. The Consumer and Homemaking Education cluster does not include the graduates who are housewives. No graduates are engaged in Environmental or Marine Science, however, some graduates enrolled in post-secondary education are enrolled in training programs to prepare them for these types of occupations.

Tables XVII and XVIII pages 33 and 34 compare graduates involvement in career clusters by sex. We find the following clusters dominated exclusively by males: Agri-Business, Transportation and Construction. The Business and Office career cluster is dominated exclusively by females. A larger percent of females than males are engaged in health, manufacturing, and personal services careers.

TABLE XVI
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY HIGH SCHOOL
ALL GRADUATES

	Ag. Bus & Natural Resources	Business & Office	Communications & Media	Construction	Consumer & Home Ed.	Environment	Fine Arts & Humanities	Health	Hosp. & Recreation	Manufacturing	Marine Science	Marketing & Distribution	Personal Services	Public Services	Transportation	Total	Percentage
WARSAW	1	2	0	3	0	0	1	0	2	4	0	7	2	0	2	24	6.8
LINCOLN	5	0	0	3	0	0	0	1	0	2	0	2	1	0	1	15	4.3
COLE CAMP	4	1	0	2	0	0	0	4	0	5	0	0	0	0	4	20	5.7
GREEN RIDGE	2	1	0	2	0	0	0	0	0	6	0	2	0	0	1	14	4.0
LA MONTE	1	1	0	0	0	0	0	1	0	3	0	1	2	1	0	10	2.8
SMITHTON	4	2	1	1	0	0	0	0	0	1	0	2	2	0	1	14	4.0
SACRED HEART	0	1	1	0	0	0	0	1	0	0	0	5	3	0	1	12	3.4
NORTHWEST	2	1	1	1	0	0	1	1	0	5	0	3	4	0	1	20	5.7
SMITH-COTTON	6	15	6	4	0	0	0	5	1	18	0	42	47	6	13	163	46.3
MARSHALL	6	4	1	3	1	0	0	8	1	10	0	14	6	1	5	60	17.0
TOTAL	31	28	10	19	1	0	2	21	4	54	0	78	67	8	29	352	100.0
PERCENTAGE	8.8	8.0	2.8	5.4	0.3	0.0	0.6	6.0	1.1	15.3	0.0	22.2	19.0	2.3	8.2	100.0	

TABLE XVII
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY HIGH SCHOOL
MALES

	Ag. Bus & Natural Resources	Business & Office	Communications & Media	Construction	Consumer & Home Ed.	Environment	Fine Arts & Humanities	Health	Hosp. & Recreation	Manufacturing	Marine Science	Marketing & Distribution	Personal Services	Public Services	Transportation	Total	Percentage
WARSAW	1	0	0	3	0	0	1	0	1	1	0	7	1	0	2	17	8.7
LINCOLN	5	0	0	3	0	0	0	0	0	1	0	2	0	[illegible]	1	12	6.2
COLE CAMP	4	0	0	2	0	0	0	0	0	3	0	0	0	0	4	13	6.7
GREEN RIDGE	2	0	0	2	0	0	0	0	0	2	0	0	0	0	1	7	3.6
LA MONTE	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	4	2.1
SMITHTON	4	0	1	1	0	0	0	0	0	0	0	1	0	0	1	8	4.1
SACRED HEART	0	0	0	0	0	0	0	0	0	0	0	4	1	0	1	6	3.1
NORTHWEST	2	0	0	1	0	0	1	0	0	1	0	2	0	0	1	8	4.1
SMITH-COTTON	6	0	5	4	0	0	0	1	0	10	0	21	27	2	13	89	45.6
MARSHALL	6	0	0	3	0	0	0	3	0	7	0	4	2	1	5	31	15.9
TOTAL	31	0	6	19	0	0	2	4	1	25	0	41	33	4	29	195	100.0
PERCENTAGE	15.9	0.0	3.1	9.7	0.0	0.0	1.0	2.1	0.5	12.8	0.0	21.0	16.9	2.1	14.9	100.0	

TABLE XVIII
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY HIGH SCHOOL
FEMALES

	Ag. Bus & Natural Resources	Business & Office	Communications & Media	Construction	Consumer & Home Ed.	Environment	Fine Arts & Humanities	Health	Hosp. & Recreation	Manufacturing	Marine Science	Marketing & Distribution	Personal Services	Public Services	Transportation	Total	Percentage
WARSAW	0	2	0	0	0	0	0	0	1	3	0	0	1	0	0	7	4.5
LINCOLN	0	0	0	0	0	0	0	1	0	1	0	0	1	0	0	3	1.9
COLE CAMP	0	1	0	0	0	0	0	4	0	2	0	0	0	0	0	7	4.5
GREEN RIDGE	0	1	0	0	0	0	0	0	0	4	0	2	0	0	0	7	4.5
LA MONTE	0	1	0	0	0	0	0	1	0	3	0	1	0	0	0	6	3.8
SMITHTON	0	2	0	0	0	0	0	0	0	1	0	1	2	0	0	6	3.8
SACRED HEART	0	1	1	0	0	0	0	1	0	0	0	1	2	0	0	6	3.8
NORTHWEST	0	1	1	0	0	0	0	1	0	4	0	1	4	0	0	12	7.6
SMITH-COTTON	0	15	1	0	0	0	0	4	1	8	0	21	20	4	0	74	47.1
MARSHALL	0	4	1	0	1	0	0	5	1	3	0	10	4	0	0	29	18.5
TOTAL	0	28	4	0	1	0	0	17	3	29	0	37	34	4	0	157	100.0
PERCENTAGE	0.0	17.8	2.5	0.0	0.6	0.0	0.0	10.8	1.9	18.5	0.0	23.6	21.7	2.5	0.0	100.0	

In the balance of the career clusters, males and females are engaged proportionately.

Table XIX page 36 indicates how graduates in the fifteen clusters located their first job. In the Agri-Business cluster 20 of 22 located the job through family and friends or their own efforts. This was due to the fact that many graduates in the Agri-Business career cluster were working on the family farm.

In the Manufacturing cluster almost 25 percent of the jobs were located through the employment service due to the opening of the McGraw-Edison plant in Sedalia in the spring of 1975 while 13 of 15 construction jobs were located through family and friend and own efforts.

The educational institution, teacher, counselor and placement specialist seemed to be most helpful to graduates in the Business and Office, Health and Public Service career clusters.

Tables XX and XXI pages 37 and 38 reflect the differences in male and female graduate responses to how they located their first job and the career cluster they are employed in.

In this section we will examine some of the mobility patterns of the 1975 graduates. Table XXII page 39 was constructed to show where the 352 graduates who are employed are located by zip code and city. Totals are not given for clusters but are the same as the totals in Table XVI on page 32.

From Table XXII we find that 179, or 50.9 percent or the majority of the graduates are employed in Sedalia, 13.1 percent in Marshall, 5.1 percent in Warsaw, 4.0 percent in Lincoln, 3.4 percent in Cole Camp, 2.3 percent in Kansas City, 2.0 percent in La Monte, 1.7 percent each in Smithton, Warrensburg, and Green Ridge, 1.4 percent in Houstonia and in Hughesville, 1.1 percent in both Miami and Napton, and 0.9 percent in Nelson and Columbia, 0.6 percent each in Ionia, Lake of the Ozarks, Mora and Fristoe, and one each in the remaining cities. Eleven of the 352 graduates who are working are living and working out of the state.

TABLE XIX
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY HOW FIRST JOB WAS LOCATED
ALL GRADUATES

	Ag. Bus & Natural Resources	Business & Office	Communications & Media	Construction	Consumer & Home Ed.	Environment	Fine Arts & Humanities	Health	Hosp. & Recreation	Manufacturing	Marine Science	Marketing & Distribution	Personal Services	Public Services	Transportation	Total	Percentage
PARENTS	13	0	2	6	0	0	0	1	0	4	0	5	2	1	5	39	13.1
FRIENDS	2	4	1	2	0	0	0	3	0	10	0	21	16	1	10	70	23.5
OTHER RELATIVES	1	6	0	1	0	0	0	0	0	5	0	2	5	0	3	23	7.7
OWN EFFORTS	4	7	3	4	0	0	2	6	0	11	0	24	19	1	2	83	27.9
NEWSPAPER AD	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	3	1.0
EMPLOYMENT SERVICE	0	3	0	1	0	0	0	3	0	11	0	1	3	0	0	22	7.4
TEACHER	0	0	0	1	0	0	0	1	0	0	0	4	4	0	0	10	3.4
COUNSELOR	0	1	0	0	0	0	0	1	0	0	0	0	1	1	0	4	1.3
PLACEMENT SPECIALIST	1	2	1	0	0	0	0	2	0	0	0	2	4	0	2	14	4.7
OTHER	1	2	1	0	1	0	0	0	1	2	0	8	8	3	3	30	10.1
TOTAL	22	25	9	15	1	0	2	18	1	43	0	68	62	7	25	298	100.0
PERCENTAGE	7.4	8.4	3.0	5.0	0.3	0.0	0.7	6.0	0.3	14.4	0.0	22.8	20.8	2.3	8.4	100.0	

TABLE XX
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY HOW FIRST JOB WAS LOCATED
MALES

	Ag. Bus & Natural Resources	Business & Office	Communications & Media	Construction	Consumer & Home Ed.	Environment	Fine Arts & Humanities	Health	Hosp. & Recreation	Manufacturing	Marine Science	Marketing & Distribution	Personal Services	Public Services	Transportation	Total	Percentage
PARENTS	13	0	0	6	0	0	0	1	0	2	0	3	1	1	5	32	19.8
FRIENDS	2	0	1	2	0	0	0	0	0	6	0	11	8	1	10	41	25.3
OTHER RELATIVES	1	0	0	1	0	0	0	0	0	3	0	1	1	0	3	10	6.2
OWN EFFORTS	4	0	3	4	0	0	2	0	0	5	0	11	6	1	2	38	23.5
NEWSPAPER AD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
EMPLOYMENT SERVICE	0	0	0	1	0	0	0	2	0	4	0	0	2	0	0	9	5.6
TEACHER	0	0	0	1	0	0	0	0	0	0	0	3	4	0	0	8	4.9
COUNSELOR	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0.6
PLACEMENT SPECIALIST	1	0	0	0	0	0	0	0	0	0	0	1	2	0	2	6	3.7
OTHER	1	0	1	0	0	0	0	0	0	1	0	4	7	0	3	17	10.5
TOTAL	22	0	5	15	0	0	2	3	0	21	0	34	32	3	25	162	100.0
PERCENTAGE	13.6	0.0	3.1	9.3	0.0	0.0	1.2	1.9	0.0	13.0	0.0	21.0	19.8	1.9	15.4	100.0	

TABLE XXI
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY HOW FIRST JOB WAS LOCATED
FEMALES

	Ag. Bus & Natural Resources	Business & Office	Communications & Media	Construction	Consumer & Home Ed.	Environment	Fine Arts & Humanities	Health	Hosp. & Recreation	Manufacturing	Marine Science	Marketing & Distribution	Personal Services	Public Services	Transportation	Total	Percentage
PARENTS	0	0	2	0	0	0	0	0	0	2	0	2	1	0	0	7	5.1
FRIENDS	0	4	0	0	0	0	0	3	0	4	0	10	8	0	0	29	21.3
OTHER RELATIVES	0	6	0	0	0	0	0	0	0	2	0	1	4	0	0	13	9.6
OWN EFFORTS	0	7	0	0	0	0	0	6	0	6	0	13	13	0	0	45	33.1
NEWSPAPER AD	0	0	1	0	0	0	0	1	0	0	0	1	0	0	0	3	2.2
EMPLOYMENT SERVICE	0	3	0	0	0	0	0	1	0	7	0	1	1	0	0	13	9.6
TEACHER	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	2	1.5
COUNSELOR	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3	2.2
PLACEMENT SPECIALIST	0	2	1	0	0	0	0	2	0	0	0	1	2	0	0	8	5.9
OTHER	0	2	0	0	1	0	0	0	1	1	0	4	1	3	0	13	9.6
TOTAL	0	25	4	0	1	0	0	15	1	22	0	34	30	4	0	136	100.0
PERCENTAGE	0.0	18.4	2.9	0.0	0.7	0.0	0.0	11.0	0.7	15.2	0.0	25.0	22.1	2.9	0.0	100.0	

TABLE XXII
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY ZIP CODE
ALL GRADUATES

	Ag Bus	Bus. & Office	Comm.	Construction	Consumer Ed.	Environment	Arts & Human.	Health	Hosp. & Rec.	Manufacturing	Marine Science	Mkt. & Dist.	Pers. Service	Pub. Service	Transportation	Total	
65301	12	15	5	5	0	0	0	6	1	22	0	46	47	4	16	179	Sedalia, MO
65340	2	4	0	3	0	0	0	5	1	10	0	14	3	0	4	46	Marshal, MO
65355	1	1	0	3	0	0	1	0	0	4	0	6	2	0	0	18	Warsaw, MO
65338	4	0	0	2	0	0	0	0	0	4	0	2	1	0	1	14	Lincoln, MO
65325	1	0	0	1	0	0	0	4	0	2	0	0	0	0	4	12	Cole Camp, MO
65337	1	1	0	0	0	0	0	0	0	3	0	0	1	1	0	7	LaMonte, MO
65332	1	0	0	0	0	0	0	0	0	4	0	1	0	0	0	6	Green Ridge, MO
64108	0	0	1	1	0	0	0	2	0	0	0	0	1	0	1	6	Kansas City, MO
64093	0	1	1	0	0	0	0	1	0	0	0	1	1	1	0	6	Warrensburg, MO
65350	1	1	1	1	0	0	0	0	0	0	0	2	0	0	0	6	Smithton, MO
65334	0	0	0	0	0	0	0	1	0	1	0	2	0	0	1	5	Hughesville, MO
65333	0	0	0	0	0	0	1	0	0	3	0	0	1	0	0	5	Houstonia, MO
[illegible]346	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	Napton, MO
65344	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0	4	Miami, MO
65347	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	3	Nelson, MO
65201	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	3	Columbia, MO
65335	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	Ionia, MO
65326	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	Lake Ozark,MO
65345	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	Mora, MO
65356	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	Fristoe, MO
65401	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	Rolla, MO
65360	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Windsor, MO
75169	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	Wills Point,TX
67206	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	Witchita, KS
67202	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Witchita, KS
65802	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	Springfield,MO
99701	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	Fairbanks,AK
80302	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	Copper Mtn,CO
76118	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	Fort Worth,TX
65276	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	Pilot Grove,MO
65251	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	Fulton, MO
65336	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	Knob Noster,MO
64801	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	Joplin,MO
64111	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	Kansas City,MO
64109	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	Kansas City,MO
60201	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	Evanston,IL
29902	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Burton, SC
[illegible]541	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	Grand Bay,AL
[illegible]078	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Yankton, SD
46805	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Ft.Wayne,IN

Within the city of Sedalia, 93 of 179 or 51.9 percent of the graduates are working in one of two clusters, Marketing and Distribution or Personal Service. In Marshall and in Warsaw, Marketing and Distribution and Manufacturing make up the majority of the graduates, 56.5 percent and 55.5 percent respectfully.

In Lincoln we find 57.1 percent of the graduates involved in the Agri-Business, and Manufacturing career clusters while in Cole Camp it is in the Health and Manufacturing careers where 50 percent of the graduates are employed.

In Table XXIII page 41 we find as in Table XVII, the male populations distributions by career clusters; however, Table XXIII indicates the city of their employment. Almost half, 49.5 percent and 58.8 percent of the males employed in Sedalia and Warsaw respectively are employed in Marketing and Distribution and Personal Services clusters.

Males dominate three clusters exclusively, Agri-Business, Transportation and Construction with graduates usually engaged in these careers in their home town. Four of eight males from Cole Camp are employed in the Transportation Cluster. We also find that six of the 195 males are employed outside of the state of Missouri, in Texas, Kansas, Alaska, South Dakota, and Illinois.

Table XXIV page 42 shows that 103 of the 157 females graduates are employed in Sedalia and Marshall. Fifteen of 80 or 18.7 percent Sedalia, and four of 23 or 17.4 percent Marshall, are in the female dominated Business and Office cluster. The Marketing and Distribution and Personal Service clusters employ 55.0 percent and 52.2 percent of the females in Sedalia and Marshall respectively. Among the employed female graduates from Lincoln, Green Ridge, La Monte, and Warsaw, 75.0 percent are engaged in the Manufacturing cluster.

Of the 157 females, six are employed outside of the state of Missouri, in Alabama, Indiana, South Caroline, Kansas, and Colorado.

TABLE XXIII
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY ZIP CODE
MALES

	Ag Bus	Bus. & Office	Comm.	Construction	Consumer Ed.	Environment	Arts & Human.	Health	Hosp. & Rec.	Manufacturing	Marine Science	Mkt. & Dist.	Pers. Service	Pub. Service	Transportation	Total	
65301	12	0	3	5	0	0	0	1	1	11	0	24	25	1	16	99	Sedalia, MO
65340	2	0	0	3	0	0	0	2	0	7	0	4	1	0	4	23	Marshall, MO
65355	1	0	0	3	0	0	1	0	0	1	0	6	1	0	0	13	Warsaw, MO
65338	4	0	0	2	0	0	0	0	0	1	0	2	0	0	1	10	Lincoln,MO
65325	1	0	0	1	0	0	0	0	0	2	0	0	0	0	4	8	Cole Camp,MO
64108	0	0	0	1	0	0	0	1	0	0	0	0	1	0	1	4	Kansas City,MO
65346	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	4	Napton,MO
65350	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	4	Smithton,MO
65337	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	3	LaMonte,MO
65334	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	Hughesville,MO
65333	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	Houstonia,MO
65335	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	Ionia,MO
65332	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	GreenRidge,MO
65201	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	Columbia,MO
64093	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	Warrensburg,MO
65344	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	Miami,MO
65356	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	Fristoe,MO
65360	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Wills Point,TX
65401	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	Rolla,MO
75169	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	Witchita,KS
76118	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	Fort Worth,TX
99701	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	Fairbanks,AK
57078	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Yankton,SD
60201	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	Evanston,IL
64109	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	Kansas City,MO
64801	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	Joplin, MO
65251	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	Fulton, MO

TABLE XXIV
RESULTS OF TELEPHONE FOLLOW-UP SURVEY
TYPE OF OCCUPATION NOW ENGAGED IN BY ZIP CODE
FEMALES

	Ag Bus	Bus. & Office	Comm.	Construction	Consumer Ed.	Environment	Arts & Human.	Health	Hosp. & Rec.	Manufacturing	Marine Science	Mkt. & Dist.	Pers. Service	Pub. Service	Transportation	Total	
65301	0	15	2	0	0	0	0	5	0	11	0	22	22	3	0	80	Sedalia,MO
65340	0	4	0	0	0	0	0	3	1	3	0	10	2	0	0	23	Marshall,MO
65355	0	1	0	0	0	0	0	0	0	3	0	0	1	0	0	5	Warsaw,MO
65338	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	4	Lincoln,MO
65325	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4	Cole Camp,MO
65337	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	4	LaMonte,MO
65332	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	4	Green Ridge,MO
64093	0	1	1	0	0	0	0	1	0	0	0	0	1	0	0	4	Warrensburg,MO
65333	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	3	Houstonia,MO
65347	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	3	Nelson,MO
65350	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	Smithton,MO
65345	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	Mora,MO
65344	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2	Miami,MO
65334	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	Hughesville,MO
65326	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2	Lake Ozark,MO
64108	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	Kansas City,MO
64111	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	Kansas City,MO
36541	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	Grand Bay,AL
46805	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Ft.Wayne,IN
29902	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Burton,SC
65201	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Columbia,MO
65276	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	Pilot Grove,MO
65336	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	Knob Noster,MO
65802	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	Springfield,MO
67202	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	Witchita,KS
67206	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	Witchita,KS
80302	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	Copper Mtn,CO

Table XXV on pages 44,45, and 46, shows the mobility patterns of the 1975 graduates by the high school they graduated from. The ten participating schools in the Career Education Project are located in Benton, Pettis, and Saline Counties. Of the 795 graduates 477 or 60.0 percent continue to reside in those counties.

Only 89 of the graduates are living outside of the state of Missouri which includes the 51 graduates who have enlisted in the armed forces and are residing at military installations throughout the world, and the two graduates who are attending college outside of the United States.

Thirty-six graduates are residing in 15 of the other 49 states including: North Carolina (1), South Carolina (1), Alabama (1), Tennessee (1), Indiana (1), South Dakota (1), Illinois (4), Kansas (9), Nebraska (1), Louisiana (1), Oklahoma (2), Texas (6), Colorado (3), Arizona (1), California (1), and one in Alaska.

TABLE XXV

RESULTS OF TELEPHONE FOLLOW-UP SURVEY
LOCATION OF RESIDENCE BY HIGH SCHOOL

	Warsaw	Lincoln	Cole Camp	Green Ridge	LaMonte	Smithton	Sacred Heart	Northwest	Smith-Cotton	Marshall	Total	
00000	7	2	6	1	0	4	1	0	31	1	53	Not Located
00001	0	0	0	0	0	0	0	0	0	1	1	Lille,France
00002	0	0	0	0	0	0	0	0	0	1	1	Cork,Ireland
00010	0	3	3	1	0	0	0	0	7	1	15	U.S. Army
00020	1	1	0	0	1	2	1	0	7	8	21	U.S. Navy
00030	1	0	0	0	0	1	0	0	3	0	5	U.S. Air Force
00040	0	0	1	0	0	0	0	0	9	0	10	U.S. Marine Corps
28302	0	0	1	0	0	0	0	0	0	0	1	Fayetteville,NC
29902	0	0	0	0	0	0	0	0	1	0	1	Burton,SC
36541	0	0	0	0	0	0	0	0	1	0	1	Grand Bay,AL
37401	0	0	0	0	0	0	0	0	1	0	1	Chattanooga,TN
46805	0	0	0	0	0	0	0	0	1	0	1	Ft.Wayne,IN
57078	0	0	1	0	0	0	0	0	0	0	1	Yankton,SD
60172	0	0	1	0	0	0	0	0	0	0	1	Roselle,IL
60201	0	0	0	0	0	0	0	0	1	0	1	Evanston,IL
60631	0	0	0	0	0	0	0	0	0	1	1	Chicago,IL
60901	0	0	0	0	0	0	0	0	0	1	1	Kankakee,IL
63122	0	0	0	0	0	0	0	0	0	1	1	St.Louis,MO
63701	0	0	0	0	0	0	0	0	2	1	3	Cape Girardeau,MO
64020	0	0	1	0	0	0	0	0	0	0	1	Concordia,MO
64024	0	0	0	0	0	0	0	0	1	0	1	Excelsior Springs,MO
64068	0	0	0	0	0	0	0	0	1	0	1	Liberty,MO
64093	7	6	2	5	3	5	5	3	12	20	58	Warrensburg,MO
64108	2	1	0	0	1	0	0	0	0	4	8	Kansas City,MO
64109	0	0	1	0	0	0	0	0	0	0	1	Kansas City,MO
64110	0	0	0	0	0	0	0	0	1	0	1	Kansas City,MO
64111	0	0	0	0	0	0	0	0	2	0	2	Kansas City,MO
64145	0	0	0	0	0	0	1	0	0	0	1	Kansas City,MO
64201	0	0	0	0	0	0	0	0	0	1	1	Columbia,MO Miscoded
64468	0	0	0	0	0	0	0	0	1	0	1	Maryville,MO
64491	0	0	0	0	0	0	0	0	0	1	1	Tarkio,MO
64735	1	0	0	0	0	0	0	0	0	0	1	Clinton,MO
64776	1	0	0	0	0	0	0	0	0	0	1	Osceola,MO
64801	0	0	0	0	0	0	0	0	2	1	3	Joplin,MO
64850	0	0	0	0	0	0	0	0	0	1	1	Neosho,MO
65051	0	0	0	0	0	0	0	0	0	1	1	Linn,MO
65053	0	0	1	0	0	0	0	0	0	0	1	Lohman,MO
65078	0	0	1	0	0	0	0	0	0	0	1	Stover,MO
65101	0	0	0	0	0	0	0	0	1	2	3	Jefferson City,MO
65201	0	0	1	2	1	4	0	0	14	12	34	Columbia,MO
65251	0	0	1	0	0	0	0	0	2	1	4	Fulton,MO

TABLE XXV (CONT'D)

RESULTS OF TELEPHONE FOLLOW-UP SURVEY
LOCATION OF RESIDENCE BY HIGH SCHOOL

	Warsaw	Lincoln	Cole Camp	Green Ridge	LaMonte	Smithton	Sacred Heart	Northwest	Smith-Cotton	Marshall	Total	
65276	0	0	0	0	0	0	0	1	0	0	1	Pilot Grove,MO
65301	1	2	3	5	1	9	16	7	212	2	258	Sedalia,MO
65325	0	0	17	0	0	0	0	0	0	0	17	Cole Camp,MO
65326	2	0	0	0	0	0	0	0	0	0	2	Edwards,MO
65329	0	0	0	0	0	1	0	0	0	0	1	Florence,MO
65332	0	0	0	11	0	0	0	0	0	0	11	Green Ridge,MO
65333	0	0	0	0	1	0	0	8	0	0	9	Houstonia,MO
65334	0	0	0	0	2	0	0	8	0	0	10	Hughesville,MO
65335	0	0	3	1	0	0	0	0	0	0	4	Ionia,MO
65336	0	0	0	0	1	0	0	0	1	0	2	Knob Noster,MO
65337	0	0	0	1	13	0	0	0	0	0	14	LaMonte,MO
65338	1	20	3	0	0	0	0	0	0	0	24	Lincoln,MO
65340	0	0	0	0	0	0	0	1	2	62	55	Marshall,MO
65344	0	0	0	0	0	0	0	0	0	4	4	Miami,MO
65345	0	0	0	0	0	2	0	0	0	0	2	Mora,MO
65346	0	0	0	0	0	0	0	0	0	5	5	Napton,MO
65347	0	0	0	0	0	0	0	2	0	2	4	Nelson,MO
65350	0	0	1	0	0	10	0	0	0	0	11	Smithton,MO
65355	29	0	0	0	0	0	0	0	0	0	29	Warsaw,MO
65356	2	0	0	0	0	0	0	0	0	0	2	Fristoe,MO
65360	0	1	0	1	0	0	0	0	0	0	2	Windsor,MO
65401	0	0	0	0	0	1	0	0	3	0	4	Rolla,MO
65613	1	0	1	0	0	0	0	0	1	5	8	Bolivar,MO
65616	1	0	0	0	0	0	0	0	0	0	1	Branson,MO
65726	0	0	1	0	0	0	0	0	0	0	1	Point Lookout,MO
65801	0	0	0	0	0	1	0	0	0	6	7	Springfield,MO
65802	3	1	0	0	0	0	1	0	8	0	13	Springfield,MO
65807	0	0	0	0	0	0	0	0	1	0	1	Springfield,MO
66006	0	0	0	0	0	0	0	0	1	0	1	Baldwin City,MO
65044	0	0	0	0	0	0	0	0	1	0	1	Lawrence,KS
65048	0	1	0	0	0	0	0	0	0	0	1	Leavenworth,KS
66061	0	0	0	0	0	0	0	0	0	2	2	Olathe,KS
66067	0	0	0	1	0	0	0	0	0	0	1	Ottawa,KS
67156	0	0	0	0	0	0	0	0	1	0	1	Winfield,KS
67202	0	0	0	0	0	0	0	0	1	0	1	Witchita,KS
67206	0	0	0	0	0	0	0	0	1	0	1	Witchita,KS
67735	0	0	0	0	1	0	0	0	0	0	1	Goodland,KS
68178	0	0	0	0	0	0	1	0	0	0	1	Omaha,NE
71459	0	1	0	0	0	0	0	0	0	0	1	Fort Polk,LA
74000	0	0	0	0	0	0	0	1	0	0	1	____Oklahoma
74101	0	0	0	0	0	1	0	0	0	0	1	Tulsa,OK

TABLE XXV (CONT'D)

RESULTS OF TELEPHONE FOLLOW-UP SURVEY
LOCATION OF RESIDENCE BY HIGH SCHOOL

	Warsaw	Lincoln	Cole Camp	Green Ridge	LaMonte	Smithton	Sacred Heart	Northwest	Smith-Cotton	Marshall	Total	
74464	0	0	0	0	0	0	0	0	1	0	1	Tahlequah,TX
75169	0	0	1	0	0	0	0	0	0	0	1	Wills Point,TX
76118	0	0	0	2	0	0	0	0	0	0	2	Fort Worth,TX
76129	0	0	0	0	0	0	1	0	0	0	1	Fort Worth,TX
79409	0	0	0	0	0	0	1	0	0	0	1	Lubbock,TX.
80202	0	0	0	0	0	0	0	0	1	1	2	Denver,CO
80302	0	0	0	0	0	0	0	0	1	0	1	Copper Mtn,CO
85281	0	0	0	0	0	0	0	0	1	0	1	Tempe,AZ
92101	0	0	0	0	0	0	0	0	1	0	1	SanDiego,CA
99701	0	0	0	1	0	0	0	0	0	0	1	Fairbanks,AK

TABLE XXVI

COMPARISON OF 1975 POST GRADUATION PLANS AND FOLLOW-UP RESULTS

	WARSAW	LINCOLN	COLE CAMP	GREEN RIDGE	LA MONTE	SMITHTON	SACRED HEART	NORTHWEST	SMITH-COTTON	MARSHALL	TOTAL	PERCENTAGE
	M F T	M F T	M F T	M F T	M F T	M F T	M F T	M F T	M F T	M F T	M F T	
Number of Graduates	33 27 60	20 19 39	24 27 51	14 18 32	8 17 25	20 21 41	11 17 28	10 21 31	181 158 339	79 70 149	400 395 795	
Number surveyed, January, 1975	34	25	39	21	22	18	16	28	303	98	604	76%
Number surveyed, college bound January, 1975	8 10 18	5 9 14	8 13 21	4 8 12	4 7 11	8 6 14	5 8 13	4 7 11	84 87 171	30 30 60	160 185 345	57%
Number surveyed, work bound January, 1975	5 9 14	3 3 6	5 7 12	4 3 7	2 5 7	2 1 3	0 2 2	3 9 12	5 45 50	7 11 18	36 95 131	22%
No. seniors registered through MAVTS or SFCCAVTS*	8 10 18	7 3 10	5 7 12	3 8 11	5 7 12	12 12 24	4 5 9	6 7 13	57 25 82	32 24 56	139 108 247	31%
No. registered through Career Education Placement Services**	5 8 13	5 7 12	7 8 15	4 4 8	5 7 12	6 8 14	2 7 9	0 3 3	19 33 52	5 10 15	58 95 153	19%
Total registered for Placement Services by Jun. 1, 1975	13 18 21	12 10 22	12 15 27	7 12 19	10 14 24	18 20 38	6 12 18	6 10 16	76 58 134	36 32 68	196 201 397	50%
Number Placed by Placement Specialist	0 0 0	0 1 1	0 1 1	0 0 0	0 1 1	1 0 1	0 0 0	0 1 1	4 1 5	2 4 6	7 9 16	4.7%
Number Working January 1976	17 7 24	12 3 15	13 7 20	7 7 14	4 6 10	8 6 14	6 6 12	8 12 20	89 74 163	31 29 60	195 157 352	44.3%
Percent of Class Employed	40.0	38.5	39.2	43.8	40.0	34.1	42.9	64.5	48.1	40.3		
Number Enrolled in College January 1976	10 11 21	6 9 15	6 11 17	6 8 14	3 10 13	8 13 21	8 10 18	4 6 10	80 81 161	43 37 80	174 196 370	46.5
Percent of Class in College	35.0	38.5	33.4	43.8	52.0	51.2	69.3	32.3	47.5	53.7		

*ALL STUDENTS ENROLLED AT MARSHALL & STATE FAIR AREA VOCATIONAL SCHOOLS WERE REQUIRED TO REGISTER FOR PLACEMENT SERVICES. THESE FACTS WERE COORDINATED BY THE CAREER EDUCATION PROJECT TO AVOID DUPLICATION.

**THESE STUDENTS VOLUNTARILY REGISTERED FOR PLACEMENT SERVICES. NO REGISTRATION WAS REQUIRED.

TABLE XXVII

GRADUATES ATTENDING POST SECONDARY INSTITUTIONS BY HIGH SCHOOL

				WARSAW	LINCOLN	COLE CAMP	GREEN RIDGE	LA MONTE	SMITHTON	SACRED HEART	NORTH WEST	SMITHCOTTON	MARTHALL	TOTALS
101	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301	9	6	10	6	8	9	8	7	95	3	161
109	SEDALIA SCHOOL OF BEAUTY	SEDALIA MO	65301									1	1	2
124	BEAUTY SCHOOL	EXCELSIOR SPRINGS MO	64024									1		1
201	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301											
204	CENTRAL MISSOURI STATE UNIVERSITY	WARRENSBURG MO	64093											
208	GOODLAND MECHANICAL SCHOOL	GOODLAND KS	67735					1						1
243	LINN TECHNICAL	LINN MO	65051										1	1
248	ST PAUL'S COLLEGE	CONCORDIA MO	64020			1								1
301	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301											
401	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301											
402	SOUTHWEST MO STATE UNIVERSITY	SPRINGFIELD MO	65802	4						1		7	7	19
403	TEXAS CHRISTIAN UNIVERSITY	FORTWORTH TX	76129							1				1
404	CENTRAL MISSOURI STATE UNIVERSITY	WARRENSBURG MO	64093	7	7	2	6	3	5	5	3	16	22	76
405	CREIGTON UNIVERSITY	OMAHA NE	68178							1				1
406	TEXAS TECH	LUBBOCK TX	79409							1				1
407	ST LUKES HOSP SCHOOL OF NURSING	KANSAS CITY MO	64145						1				1	2
410	BURGE SCHOOL OF NURSING	SPRINGFIELD MO	65802		1				1			1		3
411	SOUTHEAST MO STATE UNIVERSITY	CAPE GIRARDEAU MO	63701									2	1	3
412	DENVER UNIVERSITY	DENVER CO	80202									1	1	2
413	MISSOURI SOUTHERN UNIVERSITY	JOPLIN MO	64801									1	1	2
414	UNIVERSITY OF KANSAS	LAWRENCE KS	66044									1		1
415	AIR FORCE ACADEMY	COLORADO SPRINGS CO	00030									1	1	2
416	TENNESSEE TEMPLE COLLEGE	CHATTANOOGA TN	37401									1		1
417	NORTHWEST MO STATE UNIVERSITY	MARYVILLE MO	64468									1		1
418	LINCOLN UNIVERSITY	JEFFERSON CITY MO	65101									1	2	3
419	WESTMINSTER COLLEGE	FULTON MO	65251									2	1	3
420	BAKER UNIVERSITY	BALDWIN KS	66066									1		1
421	SOUTHWEST BAPTIST BIBLE COLLEGE	BOLIVAR MO	65613			1						1	5	7
422	MISSOURI VALLEY COLLEGE	MARSHALL MO	65340									2	12	14
423	UNIVERSITY OF MISSOURI COLUMBIA	COLUMBIA MO	65201			1	2	1	1			13	8	26
425	COLUMBIA COLLEGE	COLUMBIA MO	65201						3			1	2	6
426	ARIZONA STATE UNIVERSITY	TEMPE AZ	85281									1		1
427	INTERNATIONAL COLLEGE	FORT WAYNE IN	46805									1		1
428	UNIVERSITY OF MISSOURI ROLLA	ROLLA MO	65401						1			3		4
429	WILLIAM JEWELL COLLEGE	LIBERTY MO	64068									1		1
430	UNIVERSITY OF MO - KANSAS CITY	KANSAS CITY MO	64110									1	1	2
431	NORTH WESTERN UNIVERSITY	EVANSTON IL	60201									1	1	2
432	BAPTIST BIBLE COLLEGE	SPRINGFIELD MO	65802									1		1
433	N E OKLAHOMA STATE COLLEGE	TAHLEQUAH OK	74464									1		1
434	ST JOHN'S COLLEGE	WINFIELD KS	67156									1		1
435	AMERICAN CHRISTIAN COLLEGE	TULSA OK	74101						1					1
436	SCHOOL OF THE OZARKS	BRANSON MO	65616	1		1								2
437	MID-AMERICAN NAZARENE COLLEGE	OLATHE KS	66061										2	2
438	GATEWAY COLLEGE	ST LOUIS MO	63122										1	1
439	OZARK BIBLE INSTITUTE	NEOSHO MO	46850										1	1
440	MT ST JOSEPH	CORK IRELAND	D0002										1	1
441	CENTRAL METHODIST COLLEGE	FULTON MO	65251										1	1
442	WILLIAM WOODS COLLEGE	FULTON MO	65251			1								1
443	LINN TECHNICAL	LINN MO	65051											
444	LILLE UNIVERSITY	LILLE FRANCE	00001										1	1
445	TARIKO COLLEGE	TARIKO MO	64491										1	1
446	SCHOOL IN KANSAS	KANSAS	66000										1	1
447	STEPHENS COLLEGE	COLUMBIA MO	65201										1	1

CHAPTER IV
SUMMARY, COMPARISONS & RECOMMENDATIONS

SUMMARY

In January 1976, a telephone follow-up study was conducted with 795 1975 high school graduates of the ten school districts involved with the Career Education Project at State Fair Community College.

Of these graduates, 93.2 percent were contacted by telephone and responded to the survey instrument.

Of the respondents, 30.0 percent are involved with the world of work fulltime or part-time, 14.1 percent are working and continuing their education, 31.9 percent are continuing their education in a post-secondary education or training facility, 6.4 percent have enlisted in the armed forces, 4.9 percent are housewives, 5.3 percent are unemployed or not seeking work and 6.8 percent could not be located.

The survey also revealed that a higher percentage of the males, 48.1 percent, were involved in the world of work than females, 39.5 percent, and that a higher percentage of females, 46.4 percent, than males, 43.0 percent, were enrolled in post-secondary education or training.

A comparison of large school versus small school graduates indicated that a higher percentage of graduates from the large schools, 48.8 percent to 41.7 percent were enrolled in further education and that more of the small school graduates 31.6 to 28.9 percent were involved in the world of work. Also a greater percentage of graduates from the larger schools, 16.6 to 10.3 percent were working while they were continuing their education.

In reviewing the list of employers of 1975 graduates (Appendix E) and the list of post-secondary institutions attended (Table XXVII), it is evident that the majority of the graduates remain in Missouri and that most of the graduates remain in their home communities.

We also noted that of the 1975 graduates, 108 or 6.2 percent of the males and 21.0 percent of the females were married. In this survey we found that males had less unemployment than females and that no married male was unemployed while more of the males going to school worked, 44.0 percent than females, 26.0 percent; 53.2 percent of the 1975 graduates enrolled in higher education compares to 46.5 percent enrolled in one and two year training programs at community colleges primarily at State Fair Community College and at proprietary schools with 20.3 percent of these students planning to transfer to a four year college to obtain the four year degree of their choice.

In response to the survey item "How did you locate your first job after graduation from high school" we found that this question was not interpreted consistently but that 70.3 percent of those who responded to the question obtained their first job through their own efforts, friends, parents, and other relatives. Of the graduates, 9.1 percent located employment through the placement service or a member of the educational institution including the placement specialist, teacher, and guidance counselor. Six percent of the respondents located their job through the employment service. Newspaper ads were least successful for 1975 graduates.

Parents helped males the most and other relatives tended to help females the most. While more females than males indicated they received help locating employment through the placement specialist.

Among the 1975 graduates, 56.5 percent of those employed are employed in the following three clusters: Marketing and Distribution, 22.2 percent, Personal Service 19.0 percent and Manufacturing 15.3 percent. We also found that 8.3 percent of the graduates are engaged in Agri-Business careers, 8.2 percent in Transportation, and 8.0 percent in Business and Office careers. The 6.0 percent of the graduates in the Health cluster are mostly females, and

the 5.4 percent in Construction are all males. Two and eight tenths percent of the graduates are engaged in Communication & Media careers, 2.3 percent in Public Service careers and 1.1 percent in Hospitality and Recreation careers. Only two graduates are employed in the Fine Arts and Humanities cluster and one graduate is employed in the Consumer and Homaking Education cluster. Employers of the 1975 graduates are listed in Appendix E as there are 241 employers of the 352 employed graduates.

In this survey we also found that very few graduates, only 89 left the state of Missouri to obtain employment and/or post-secondary education or training. Four hundred sixty-one of the 795 graduates or 58.0 percent of the 1975 graduates even remained within their local high school district.

The most frequently attended post-secondary institution is State Fair Community College with 161, 1975 graduates enrolled, 76 graduates are enrolled at Central Missouri State University, 26 at the University of Missouri, 12 at Southwest Missouri State University, 7 at Southwest Baptist College, 6 at Columbia College, 4 at the University of Missouri at Rolla and 3 graduates are at each of the following: Burge School of Nursing, Southeast Missouri State, Lincoln University, and Westminster College. The remainder of the 49 post-secondary institutions only had one or two graduates enrolled and are listed in Table XXVII.

COMPARISON OF 1974 and 1975 GRADUATES

This chapter deals with some comparisons of the findings in this report with findings from the Follow-Up Survey of 1974 Graduates.

The 1975 and 1974 follow-up surveys were conducted in the same ten school districts, Warsaw, Lincoln and Cole Camp in Benton County; Green Ridge, La Monte, Smithton, Northwest, Sedalia (Smith-Cotton) and Sacred Heart High Schools in Pettis County, and Marshall High School in Saline County.

Both follow-up surveys were conducted using the telephone as the data gathering device and in most cases the guidance counselor(s) was the interviewer. Both surveys were conducted about nine months following graduation during the month of January. In 1974, there were 860 graduates and 96.98 percent were contacted by telephone and responded to the survey instrument. In 1975, there were 795 graduates and 93.2 percent responded to the survey. The lower response in 1975 could have been attributed to several factors:

1. The novelty of a telephone follow-up survey had worn off.
2. Not as many graduates had telephones.
3. Not as much staff time was available to conduct the 1975 survey.
4. Or a myriad number of other factors.

We find that 3.4 percent fewer 1975 graduates are working full or part-time than in 1974, 33.37 percent versus 30.0 percent, and that 1.9 percent more 1975 graduates are working while going to school. Comparisons also show that 4.5 percent fewer 1975 graduates were enrolled in fulltime post-secondary institutions and that more 1975 graduates enlisted in the Armed Forces.

In terms of mobility most of the 1975 graduates remained in the state of Missouri and 461 or 58.0 percent of the 1975 graduates remained within their high school district.

In terms of education, 418 or 48.6 percent of 1974 graduates enrolled in post-secondary training or educational institutions while in 1975, 370 or 46.5 percent enrolled. In 1975 we found more graduates enrolled in four year colleges

than in 1974, 53.2 percent compared to 50.6 percent while fewer 1975 graduates enrolled in vocational and technical programs or community colleges, 46.5 percent to 48.7 percent.

Following the 1974 follow-up study the survey instrument was changed tc ascertain more information about how graduates located their employment in an effort to determine the accountability of the educational system and the placement service. Of the 1974 graduates, 385 or 44.8 percent responded to the question Did you locate employment through your high school counselor and/or the Career Education Job Placement Service?" and 7.8 percent indicated they had. Of the 1975 graduates, 340 or 42.8 percent responded to the question, "How did you locate your first job after graduation?" and 9.1 percent of the respondents indicated that the educational institution including teachers, counselors, and the placement service assisted them in locating their employment. The follow-up of 1975 graduates substantiates that most graduates obtain employment leads through family, friends, relatives, as has been documented in other studies.

In the 1975 follow-up it was also deemed appropriate to determine what career clusters graduates were entering upon graduation. Over half, 56.5 percent, of the graduates are employed in the following clusters, Marketing and Distribution, 22.2 percent; Personal Service, 19.0 percent; and Manufacturing, 15.3 percent. Male graduates dominate exclusively the Agri-Business and Natural Resourse, Transportation and Construction cluster while female graduates dominated exclusively the Business & Office cluster with a large percentage also employed in Health clusters.

This survey, like the survey of 1974 graduates, was constructed to obtain data about the 1975 graduates and for use in determining trends and for use as a basis for future decisions, hopefully to meet the needs of our graduates and improve the accountability of our educational systems.

RECOMMENDATIONS

Having completed the second follow-up survey, several recommendations can be made to improve future follow-up activities. These recommendations are:

(1) Additional yearly follow-up studies should be conducted by each school district to determine what happens to its graduates.

(2) Attempts should be made to find out how graduates feel about curriculum, facilities, and faculty.

(3) Additional follow-up studies should be conducted to follow-up high school students who have dropped out of school.

(4) Two year and five year follow-up studies should be considered by each school district to determine what happens to it's graduates over a longer period of time.

Recommendations that can be made about programs include:

(1) More emphasis on Marketing and Distribution, Personal Service and Manufacturing, and Transportation career cluster entry level skills.

(2) Continued improved vocational and technical training programs in Agri-Business, Business and Office, Health and Construction clusters.

(3) Continued job development and placement services to graduates to assist them in their transition into the world of work.

(4) Some modification of individual high school curricula is needed to better meet graduates needs.

APPENDIX A

TELEPHONE FOLLOW-UP SURVEY INSTRUMENT

TELEPHONE FOLLOW-UP SURVEY
SFCC CAREER EDUCATION PROJECT

Number of calls...1, 2, 3, 4, (Please circle)
With whom did you speak? Graduate Other Adult (Please circle)

I am _____
Name Title and/or School

and we are conducting a telephone follow-up survey of our high school graduates. This information is for statistical purposes and to assist your Alma Mater and the SFCC Career Education Job Placement Service in providing better service to students and the community. Your assistance in answering these questions is appreciated.

Graduates Name: _____
(Last) (First) (Initial) (Maiden Name)

Address _____
(Street or RR) (City) (State) (Zip Code)

Telephone Number _____ Sex: Male _____ Female _____

Marital Status: Single _____ Married _____

1. What are you doing now? _____

(1) If Employed:

_____
Name of Employer

_____
Address

_____
City State Zip

_____
Job Title

Are you working.....
___Full-time, 30 hrs. or more/week
___Part-time, 29 hrs. or less/week
___Self-employed
___Unemployed, want work
___Unemployed, not seeking work
___Other (explain) _____
_____
___Not Located

(2) If in School:

_____
Name of School

_____
City State Zip

_____
Course of Study Major

Are you enrolled in school.....
___Full-time, 12 or more semester hours
___Part-time, 11 or less semester hours
___Correspondence
___Other(explain) _____
_____
_____
_____

(3) Other:
___Army
___Navy
___Air Force
___Marines
___Coast Guard
___National Guard Reserve
___Housewife
___Other

(4) How did you locate your first job after graduation? (one response only-applies only to students who have worked since graduation)

__Parent
__Friends
__Other Relatives
__Your own efforts
__Newspaper Ad
__Employment Service
__Teacher
__Counselor
__Placement Specialist
__Other _____

APPENDIX B

WORKSHOP PARTICIPANTS

JOB DEVELOPMENT, PLACEMENT & FOLLOW-UP COMPONENT
DECEMBER 16, 1975
RAMADA INN, SEDALIA, MO

Kay Sparks, Guidance Counselor	La Monte High School
Monte Cass, Placement Specialist	Warrensburg AVTS
J. Orlando Sandoval, Placement Specialist	Longview Community College
Mary Cary, Placement Specialist	Longview Community College
H. N. "Chuck" Branson, Guidance Counselor	Smith-Cotton High School
Carleda Williams, Guidance Counselor	Lincoln High School
Harold Finke, Guidance Counselor	Green Ridge High School
Madelyn Elliot, Guidance Counselor	Marshall High School
Bill McGuire, Guidance Counselor	Northwest High School
Bill Gott, Guidance Counselor	Warsaw High School
Wendell Ware, Superintendent	Smithton School District
William Smart, Principal	Cole Camp High School
Jay Fajen, Guidance Counselor	Cole Camp High School
Paul McKee, Superintendent	Hughesville School District

Bill Hall, Corporate Manager, Rival Manufacturing Co., Sedalia, MO

Bill Giles, Missouri Job Service, Sedalia, MO office

Dale Diekhoff, Applications Programmer, CMSU, Warrensburg, MO

APPENDIX C

TELEPHONE CALLERS SCRIPT

GENERAL CALLING INFORMATION

In making these calls, or any telephone calls remember always to be courteous. In being positive yourself, you may obtain a more cooperative response. Listen carefully. Speak clearly and slowly. Sometimes after learning what the caller is seeking, those called will be more helpful.

This information you are obtaining is important for the school system in its evaluation of whether educational experiences are meeting student needs as they move into the working world.

When telephoning graduates if you do not get an answer after at least six rings, note the date and time you tried the call at the top of the form and attempt to reach other graduates. At least four attempts should be made to each graduate at different times of the day; this does not count calls that yield a busy signal.

If you reach a disconnected or out of service number, obtain as much information from the operator as possible and write it in the margin, i.e.,

is the phone disconnected?
out of service?
number has been changed? get the new number
number changed to unlisted number?

If the number has been changed, try the number the operator gives you and note the new number on the form.

Your service to the school system as a caller in this important activity is appreciated. Thank you and good luck!

CALLER'S SCRIPT

For uniformity, this script has been prepared for each caller. What you are to say will be in a box.

Preliminary Information

"My name is _____.

I am a _____ at _____,
grade classification-job title school

where my _____ class is conducting a telephone follow-
subject
up survey of all 1975 _____ graduates.
school
Is this the residence of _____? (pause)
graduates name
May I please speak with _____?
graduates name

If a child answers, ask to speak with an adult in the home, and begin the prelimina information again. If an adult answers and the graduate is not available, say,

"Maybe you can help me complete the survey with some basic information about what

_____ is doing now?"
graduates name

If the answer is positive, skip to Part B, and continue. If the answer is negative, ask,

"When might I talk with _____ to learn how his high school
graduate
experiences relate to his present activity?"

Try to contact the graduate at the specified time.

Thank the person for any information given to you.

Part B

"This survey will help the school system to know how school experiences relate to present activities. The survey will give a total picture of all graduates school experiences as they relate to present activities. Some of the questions involve basic information which is a matter of public record, but we'd like to get answers to these questions as a part of the complete survey. Other questions pertain to what you've been doing since you graduated. It should take only a couple of minutes to complete the information.

"Ready?"

Let me first check your name _____.
give full name from card

Do you still live at _____?
give address on card

or

What is your address? _____

or

What is your new address? _____

Your phone number is _____?
give the number you called

We also need the zip code to complete computer forms, however, do not pressure the graduate for the zip code if they don't know it. We can obtain it from a directory later. We need the entire address including house number, street, rural route, box number, etc.

From the conversation you may already know the graduate's sex, if so, check the appropriate sex on the form. If not, ask

"What is your sex? Male or Female?"	write in on form
"What is your marital status? Married or Single?"	write in on form

"What are you doing now, working, going to school, in the service, housewife?"

Listen for response. If student says he is not working but is going to school, skip to SCHOOL, if he is in Armed Forces, or Housewife, skip to OTHER, if in school and working, complete both EMPLOYED & SCHOOL sections. If he is working, ask,

(1) EMPLOYED

"Who is your employer?" "What is your employer's address?" "What is your job title?" "Are you working full-time, or part-time?"	enter responses on form

If a student indicated he is self-employed, record his name as employer, his address as his business address, and job title as what he does. Then check only the self-employed section under job title. Do not complete full-time or part-time.

If the graduate is unemployed, not working or going to school, investigate the type of unemployment, ask,

"If you are unemployed, are you looking for work or not looking for work?"

Check the correct response on the form.

If the student is working and none of the above descriptions are accurate, check OTHER and write in an explanation.

(2) SCHOOL

If the graduate indicates he is in college, vocational school, taking correspondence courses, or taking further training, complete this section, ask,

"What school are you attending?"	write in on form
"Where is the school located?"	write in on form
"What is your major or what are you studying to be?	write in on form
"Are you enrolled as a full-time or part-time student?	write in on form

Full-time students are usually enrolled in 12 or more semester hours of course work. Part-time is usually less than 12 hours per semester. Some students may be taking correspondence courses. Check the appropriate box on the form if they are.

If a student is in school but none of the above describe their activity, check OTHER and write a brief description, i.e., Job Corps, prison school, etc.

(3) OTHER

If the graduate is in the armed forces, ask,

"In what branch of the armed forces are you now serving?"	write in on form

Some graduates will describe their occupation as housewife, if so, check Housewife on the form. They may be both a housewife and in school and/or working or both complete all sections on the form that apply.

If the graduate has not obtained employment since graduation, this question will not apply. Ask,

(4) LAST SECTION

"From whom or how did you find out that there was a job opening for your first job after graduation?"

Enter this response on the form. Use only one response, the one that was the most helpful to the graduate in learning about the job.

Do not read choices on the form unless graduate does not know what you are looking for. If he does not understand why we are asking these particular questions, tell him we want to know how he found out that there was a job available that interested him and later interviewed for the job and was employed. We want to know HOW he found out about the job opening, NOT how he got the job.

"This concludes our survey of 1975 high school graduates. We want to thank you for your assistance and cooperation."

Goodbye."

APPENDIX D

SURVEY CODING INFORMATION

QUESTIONNAIRE CODING FORM

1
SCHOOL ID.

2 — 21
STUDENT NAME

22 — 36
ADDRESS

37 — 51
CITY - STATE

52 — 56
ZIP CODE

57
MARITAL
STATUS

58
SEX

59
EMPLOYMENT
STATUS

60 — 62
EMPLOYER CODE

63 — 64
OCCUPATIONAL
CLUSTER NUMBER

65
ENROLLED IN
OTHER EDUCATION

66 — 68
INSTITUTION ID
CODE

69 — 71
MAJOR CODE

72
ARMED FORCES

73
HOW LOCATED
JOB

QUESTIONNAIRE CARD FORMAT

COLUMNS			
1	School ID Code	Ø-Warsaw 1-Lincoln 2-Cole Camp 3-Green Ridge 4-La Monte	5-Smithton 6-Sacred Heart 7-Northwest 8-Smith-Cotton 9-Marshall
2-12	Name (Last Name First)		
22-36	Street Address		
37-51	City - State		
52-56	Zip Code		
57	Marital Status	S-Single	M-Married
58	Sex	M-Male	F-Female
59	Employed	1-Full-Time 2-Part-Time 3-Self-Employed 4-Unemployed (Seeking)	5-Unemployed (not seeking work) 6-Other 7-Not Located
60-62	Employer Code (3 - digits)		
63-64	Occupational Cluster Number (Ø1-15)		
65	Enrolled in Further Education	1-Full-Time 2-Part-Time	3-Correspondence 4-Other
66-68	Institution ID Code (3 digits) column 66	1-One-Year School 2-Vocational/Technical 3-Transfer Student 4-Four-Year Student	
69-71	Major Area of Study (3 digits)		
72	Armed Forces	1-Army 2-Navy 3-Air Force 4-Marines	5-Coast Guard 6-National Guard Reserves 7-Housewife 8-Other
73	How Located Job	1-Parent 2-Friends 3-Other Relative 4-Own Efforts 5-Newspaper Ads Blank-No response	6-Employment Service 7-Teacher 8-Counselor 9-Placement Specialist Ø-Other
74-80	Blank		

INSTRUCTIONS FOR TRANSFERRING THE INFORMATION
FROM THE QUESTIONNAIRE TO THE CODING FORM

1. Fill in the school ID number, Each of the ten schools has a unique number identifying it. See the card format sheet for codes.

2. Fill in the graduates Name (last name first), Address, and Zip Code in the appropriate spaces. Do not exceed the space provided (abbreviate where necessary).

3. Code the marital status; M for married; S for single. Must fill in one of these codes.

4. Code the sex of the student; M for male, F for female. Must fill in one of these codes.

5. Fill in the employment status. See card format sheet for codes. One of these codes must be chosen.

6. If the graduate is employed, fill in the employer code. If the graduate is not employed, leave this space blank. If the employer does not already have a code, assign a 3-digit code and record it on an employer coding form (orange sheet) along with the employers name and address.

7. If the student is employed, code his job title into one of the 15 occupational cluster numbers. See the sheet entitled Data Identification Index for codes. If the graduate is not employed, leave this space blank.

8. Code whether or not the graduate is enrolled in further education. If he is enrolled, fill in one of the codes found on the card format sheet. If he is not enrolled, leave the space blank.

9. If the graduate is enrolled, fill in the Institution ID code. If the student is not enrolled, leave this space blank. If the school does not already have a code assigned, assign a code to it and also fill out a college coding form (yellow form) with the name and address of the college. The first digit of the Institution ID code identifies the type school and must be a 1, 2, 3, or 4. See codes on card format sheet.

10. If the graduate is enrolled, determine his major code and fill it in on the coding form. See major code listing for codes. If the graduate is not enrolled, leave space blank.

11. If the graduate is in the armed forces or is a housewife, fill in the Armed Forces column with the correct code from the card format sheet. If the graduate does not fit one of these categories, leave the space blank.

12. Code the space on how they located their first job. See card format sheet for codes. If they have never had a job, leave the space blank.

EMPLOYER CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

EMPLOYER CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

EMPLOYER CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

EMPLOYER CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

OCCUPATIONAL CLUSTER GUIDE

01	Agri-Business & Natural Resources		
	A	Support & Regulations	Inspectors, Food & Drugs, Conservationists
	B	Research	
	C	Forestry	Logger, Forestfire Fighter, Forester
	D	Land & Water Management	
	E	Fisheries & Wildlife	Preservation, Propagation & Use
	F	Mining & Quarrying	
	G	Petroleum & Related Products	Exploration & Production
	H	Productive Agriculture	Farming, Farm work, Ranching
	I	Processing & Marketing Services	Cheese Processing, elevator operators
02	Business and Office		
	J	Accounting	Accountant, bookkeeper, acc. clerk
	K	Computer	Key Punch operator
	L	Secretarial Science	Secretary, receptionist, stenographer
	M	Management	Supervisor, Asst. Manager
	N	Personnel	Recruiting, interviewing and hiring
	O	Finance, Insurance, Real Estate	Payroll clerk, bankteller, time keeper
	P	Office (clerical)	Clerk, file clerk, machine operator, typist
03	Communications and Media		
	Q	Journalism	Proofreader, reporter, editor, circulation
	R	Motion Pictures	All but acting
	S	Telephone & Telegraph	Telephone operator, installation, maintenance
	T	Recording Industry	Sales, production, engineer
	U	Radio & Television Broadcasting	Camera man, announcer, creating, broadcasting
	V	Satellite & Laser Transmission	
04	Construction		
	W	Wood Construction	Carpenter, laborer
	X	Metal Construction	Iron worker, laborer, sheet metal, pipe fitter
	Y	Masonry Construction	Brick layer, plasterer, stone cutter, cement mason
	Z	Electrical Construction	Electrician, airconditioning
	AA	Finishing	Carpet layer, insulation, cabinet maker, Painter
	AB	Equipment Operators	Heavy Eqpt., Asphalt, cranes, blasting
	AC	Engineering & Support Occupations	Draftsman, architect, demolition, surveyor, landscaper
05	Consumer & Homemaking Education		
	AD	Food Specialists	Dietician, food service supervisor
	AE	Housing & Household Equipment Spec.	
	AF	Textiles & Clothing Specialists	Fashion, design
	AG	Family Economics & Home Management	To educate families to be able to make the
	AH	Family Relations & Child Development	most of their resources and enhance individual family social well-being.
	AI	Extension Services	Not sales
06	Environment		
	AJ	Pollution Prevention & Control	Sanitation Engineer, waste treatment
	AK	Disease Prevention	Home exterminator, food & drug inspector
	AL	Environmental Planning	Traffic engineer, urban planning, zoning
	AM	Resource Control	Park and campground ranger

07	Fine Arts & Humanities		
	AN	Visual Arts	Advertising, commercial artist, artist, design, photography, painting,
	AO	Occupations in Writing	Author, playwright, poet, editor, orator
	AP	The Performing Arts	Actors, dancers, singers, choreographer
	AQ	Architecture	
	AR	Religion & Theology	Clergy, religious education
	AS	Language & Linguistics	Interpretor, translator
	AT	History & Museums	Historian, Archivist, anthropologist
08	Health		
	AU	Mental Health & Mental Health Serv.	Psychologist, psychiatrist
	AV	Denistry& Dental Science Serv.	Making dentures, dentist, dental technician
	AW	Medical & Biological Science Serv.	nurses & technicians
	AX	General Hospital & Medical Office Related Occupations	Lab clerk, orderly, reception, clerks
	AY	Medical Emergency Services	Ambulance
	AZ	Administration of Health Serv.	Housekeeper, volunteer
	BA	Personal & Community Health Serv.	Public health nurse, school nurse, home aide
	BB	Pharmaceutical Science & Services	Pharmacist
	BC	Professional Medical Supportive Personnel	Clinicians, therapists, hearing, sight, speech
	BD	Medical Profession	MD, nurse, LPN
09	Hospitality and Recreation		
	BE	Commercial & Non-Commercial Travel Bureaus	Information
	BF	Travel Agencies	Public relations, ticket agent
	BG	Transportation	Steward, stewardess, conductor
	BH	Public, Industrial & Private Recreation (Commercial & Non-Commercial)	Pooltable repair, game official, athletics, circus, waitress, waiter, usher, animal trainer
	BI	Recreation Concerned with Natural Resources	Lifeguard, tourist guide, zoo keeper,
10	Manufacturing		
	BJ	Management	President, Manager
	BK	Scientist	
	BL	Engineers	
	BM	Technician	Production, planning, quality control
	BN	Craftsmen	Foremen, welders, tool & die
	BO	Skilled Workers	Meatcutter, electrician, plumber, repairmen Assembler, layout
	BP	Semi-skilled Workers	Seamstress, bobbin threader,painter, grinder
	BQ	Unskilled Laborers	Packing, warehousemen, laborer, cutter, etc.
11	Marine Science		
	BR	Research	Geologist, biologist, meteorologist
	BS	Chemical & Mineral Extraction	
	BT	Off-shore Drilling	
	BU	Fishing	Fisherman, cleaner, processor
	BV	Aquaculture	
	BW	Marine Engineering & Technology	Diving
	BX	Surface & On-shore Support	Motorboat mechanic, dockmaster

12	Marketing & Distribution		
	BY	Marketing Management	Dept. manager, Asst. manager
	BZ	Market Research & Analysis	Analyst, statistician, economist
	CA	Purchasing	Buyer, broker, jobber
	CB	Sales Promotion & Training	Floor manager, package designer, display model
	CC	Selling	Salesperson, sales clerk
	CD	Physical Distribution	Assembly & delivery, catalog dept., stocker
	CE	Related Business Service	Clerk, Bookkeeper, cashier, credit clerk, checker, clerical
13	Personal Services		
	CF	Domestic Service	Babysitter, housekeeper, maid,
	CG	Lodging & Related Services	Car rental clerk, janitor, maintenance, Room clerk, attendant
	CH	Barbering, Cosmetology & Related Services	Barber, hairdresser, embalmer
	CI	Drycleaning, Laundry, & Apparel Serv.	
	CJ	Stewards, Attendants, Hosts & Misc. Personal Services	Greenskeeper
	CK	Domestic Animal Care	Kennel personnel, trainers, attendants
	CL	Food & Beverage Preparation & Services	Waitress, food service handler, cook, bartender, counterperson
14	Public Services		
	CM	Administration & Regulatory Serv.	
	CN	Urban Development	Urban planners, environment
	CO	Education	Library, student aide, teachers aide, work study, teacher, counselor
	CP	Protective Services	Police, fire, civil defense
	CQ	Post Office	mail person
	CR	Public Utilities	Street dept., water treatment, gas, sewer
	CS	Public Health	Health officer
	CT	Labor Affairs	Labor standards, employment counselors
	CU	Public Transportation	Buses, taxis, subways
	CV	Social Services, Rehabilitation, Correction	Social workers, lawyers, social service aides, institutional child care
	CW	Parks & Recreation	Playground supervisor, parks officer
15	Transportation		
	CX	Highway Transportation	Trucker, auto mechanic, service station attendant, taxi driver, parking lot attendant
	CY	Rail Transport	Engineer, agent, maintenance, dispatcher
	CZ	Airborne Transport	Pilot, navigator, ticket agent, dispatcher
	DA	Pipeline Teansport	Pumpman, pipe maintenance, line worker
	DB	Water Transport	Captain, engineer, crewman, repairman, freight handling, wharfman

Armed Forces
- Army
- Navy
- Air Force
- Marines
- Coast Guard
- National Guard

COLLEGE CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

COLLEGE CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

COLLEGE CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 ZIP 80

COLLEGE CODING FORM

1 3 CODE

5 NAME 44

46 CITY-STATE 75

76 80

COLLEGE AND UNIVERSITY CODES

101	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301
109	SEDALIA SCHOOL OF BEAUTY	SEDALIA MO	65301
124	BEAUTY SCHOOL	EXCELSIOR SPRINGS MO	64024
201	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301
204	CENTRAL MISSOURI STATE UNIVERSITY	WARRENSBURG MO	64093
208	GOODLAND MECHANICAL SCHOOL	GOODLAND KS	67735
243	LINN TECHNICAL	LINN MO	65051
248	ST PAUL'S COLLEGE	CONCORDIA MO	64020
301	STATE FAIR COMMUNITY COLLEGE	1900 CLARENDON RD SEDALIA MO	65301
401	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301
402	SOUTHWEST MO STATE UNIVERSITY	SPRINGFIELD MO	65802
403	TEXAS CHRISTIAN UNIVERSITY	FORTWORTH TX	76129
404	CENTRAL MISSOURI STATE UNIVERSITY	WARRENSBURG MO	64093
405	CREIGTON UNIVERSITY	OMAHA NE	68178
406	TEXAS TECH	LUBBOCK TX	79409
407	ST LUKES HOSP SCHOOL OF NURSING	KANSAS CITY MO	64145
410	BURGE SCHOOL OF NURSING	SPRINGFIELD MO	65802
411	SOUTHEAST MO STATE UNIVERSITY	CAPE GIRARDEAU MO	63701
412	DENVER UNIVERSITY	DENVER CO	80202
413	MISSOURI SOUTHERN UNIVERSITY	JOPLIN MO	64801
414	UNIVERSITY OF KANSAS	LAWRENCE KS	66044
415	AIR FORCE ACADEMY	COLORADO SPRINGS CO	00030
416	TENNESSEE TEMPLE COLLEGE	CHATTANOOGA TN	37401
417	NORTHWEST MO STATE UNIVERSITY	MARYVILLE MO	64468
418	LINCOLN UNIVERSITY	JEFFERSON CITY MO	65101
419	WESTMINSTER COLLEGE	FULTON MO	65251
420	BAKER UNIVERSITY	BALDWIN KS	66006
421	SOUTHWEST BAPTIST BIBLE COLLEGE	BOLIVAR MO	65613
422	MISSOURI VALLEY COLLEGE	MARSHALL MO	65340
423	UNIVERSITY OF MISSOURI COLUMBIA	COLUMBIA MO	65201
425	COLUMBIA COLLEGE	COLUMBIA MO	65201
426	ARIZONA STATE UNIVERSITY	TEMPE AZ	85281
427	INTERNATIONAL COLLEGE	FORT WAYNE IN	46805
428	UNIVERSITY OF MISSOURI ROLLA	ROLLA MO	65401
429	WILLIAM JEWELL COLLEGE	LIBERTY MO	64068
430	UNIVERSITY OF MO - KANSAS CITY	KANSAS CITY MO	64110
431	NORTH WESTERN UNIVERSITY	EVANSTON IL	60201
432	BAPTIST BIBLE COLLEGE	SPRINGFIELD MO	65802
433	N E OKLAHOMA STATE COLLEGE	TAHLEQUAH OK	74464
434	ST JOHN'S COLLEGE	WINFIELD KS	67156
435	AMERICAN CHRISTIAN COLLEGE	TULSA OK	74101
436	SCHOOL OF THE OZARKS	BRANSON MO	65616
437	MID-AMERICAN NAZARENE COLLEGE	OLATHE KS	66061
438	GATEWAY COLLEGE	ST LOUIS MO	63122
439	OZARK BIBLE INSTITUTE	NEOSHO MO	64850
440	MT ST JOSEPH	CORK IRELAND	00002
441	CENTRAL METHODIST COLLEGE	FULTON MO	65251
442	WILLIAM WOODS COLLEGE	FULTON MO	65251
443	LINN TECHNICAL	LINN MO	65051
444	LILLE UNIVERSITY	LILLE FRANCE	00001
445	TARIKO COLLEGE	TARIKO MO	64491
446	SCHOOL IN KANSAS	KANSAS	66000
447	STEPHENS COLLEGE	COLUMBIA MO	65201

MAJOR-MINOR CODES

020COMPUTER TECHNOLOGY
023SECRETARIAL TRAINING
027AUTOMOTIVE TECHNOLOGY
028ELECTRICAL ENGINEERING
029ELECTRONIC TECHNOLOGY
030LAW ENFORCEMENT
034BLDG MAT MERCH
035ARCH DRAFT TECH
049NUCLEAUR MEDICINE
051PRE-MEDICAL
052PRE-LAW
053PRE-DENTAL
054PRE-PHARMACY
060PRE-VET MEDICINE
065CLERICAL SKILLS
066COURT REPORTER
067WELDING
070ELECTRICAL ENGINEERING
071AEURONATICS
072CIVIL ENGINEERING
073CHEMICAL ENGINEER
074AEROSPACE ENGINEER
075ENGINEERING
080THEOLOGY
081RELIGION
090COSMETOLOGY
110AGRICULTURE
111AGRICULTURE-BUSINESS
117HORTICULTURE
118WILDLIFE CONSERVATION
119CONSERVATION
120GENERAL ART
123ART-ALLIED ARTS
129HOME ECONOMICES
135HOME EC TEXTILES
136INTERIOR DESIGN
141INDUSTRIAL TECHNOLOGY
142DRAFTING TECHNOLOGY
145ELECTRICITY ELECTRONICS
149INDUSTRIAL ARTS
160NURSING
161PRACTICAL NURSING
162INHULATION THERAPY
163PHYSICAL THERAPY
164X-RAY TECH
165DENTAL HYGENIST
166ANIMAL SCIENCE
200EDUCATION
210ELEMENTARY EDUCATION
212EL ED - CHILD DEV
214INDUSTRIAL SAFETY
220PSYCHOLOGY
245SPECIAL EDUCATION
260LIBRARY SCIENCE
310ENGLISH
311JOURNALISM
312ENGLISH-JOURNALISM
315ARTS AND SCIENCE
316LIBERAL ARTS
317CIVIL SERVICE

82

MAJOR-MINOR CODES (CONT'D)

330SPEECH
331SPEECH PATHOLOGY SPEC ED
332PUBLIC RELATIONS
335MASS MEIDA-RADIO
337THEATRE
338SPEECH & DRAMA
339ENGLISH-DRAMA
340DANCE
341FOREIGN LANGUAGE
400PHYSICAL EDUCATION
412GENERAL RECREATION
420RECREATION
421RECREATION-WOMEN
422COACHING
423CHURCH RECREATION
514MUSIC THERAPY
517MUSIC
518MUSIC
520MUSIC EDUCATION
524MUSIC & DRAMA
600SCIENCE
609GENETICS
610BIOLOGY
611MEDICAL TECHNOLOGY
620CHEMISTRY
630MATHEMATICS
650EARTH SCIENCE
670MATH EDUCATION
671MATH ED SECONDARY
700SOCIAL STUDIES
710ECONOMICS
730HISTORY
740POLITICAL SCIENCE
770CRIMINOLOGY
771CRIMINAL JUSTICE ADMIN
780SOCIAL WORK
800BUSINESS EDUCATION
801ACCOUNTING
805OFFICE MANAGEMENT
810BUSINESS
812BUSINESS ADMINISTRATION
813MGMT & DISTRIB ED
814MID-MANAGEMENT
815BUSINESS MANAGEMENT
998HIGH SCHOOL COMPLETION
999UNDECIDED

EMPLOYER CODES

001	HOMEMAKERS FURNITURE	Sedalia, MO	65301
002	CONSUMERS MARKET	Sedalia, MO	65301
003	RUSSELL BROTHERS	Sedalia, MO	65301
004	PITTSBURG CORNING CO	Sedalia, MO	65301
005	BILL GREER MOTORS	Sedalia, MO	65301
006	FLAT CREEK INN	Sedalia, MO	65301
007	PIONEER PRINTING	SEDALIA MO	65301
008	WESTERN AUTO	SEDALIA MO	65301
009	WESTMORELAND COUNTRY CLUB	SEDALIA MO	65301
010	DR GARY EVERT	SEDALIA MO	65301
011	PENNEYS	SEDALIA MO	65301
012	PHARMACY	WARRENSBURG MO	64093
013	VETERINARY CENTER	SEDALIA MO	65301
014	SAMROS	KANSAS CITY MO	64141
015	OLD MISSOURI HOMESTEAD	SEDALIA MO	65301
016	EDDIE MINOR	LA MONTE MO	65337
017	LA MONTE CITY DEPARTMENT	LA MONTE MO	65337
018	LAMY MFG CO	SEDALIA MO	65301
019	WHITEMAN AIR FORCE BASE	KNOB NOSTER MO	65336
020	MCGRAW-EDISON CO	SEDALIA MO	65301
021	BOTHWELL MEMORIAL HOSPITAL	SEDALIA MO	65301
022	FATHERS FARM	WINDSOR MO	65360
023	WORKS FOR FATHER	LINCOLN MO	65338
024	CONSTRUCTION COMPANY	KANSAS CITY MO	64108
025	FATHERS CONSTRUCTION CO	LINCOLN MO	65338
026	ATCHISON CONSTRUCTION COMPANY	WARSAW MO	65355
027	FARMERS BANK OF LINCOLN	LINCOLN MO	65338
028	JOHN DEERE IMPLEMENT	LINCOLN MO	65338
029	BEULAHS HIGH FASHION	LINCOLN MO	65338
030	RIVAL MANUFACTURING CO	CLINTON MO	64735
031	MAYFIELD SEED COMPANY	CLINTON MO	64735
032	ASC AGRICULTURE STABILIZATION COMM	CLINTON MO	64735
033	MFA GROCERY	LINCOLN MO	65338
034	KERR-MCGEE STATION	LINCOLN MO	65338
035	FAJERS GUNSTOCKS	WARSAW MO	65355
036	NURSING HOME	GRAND BAY AL	36541
037	PIT STOP CAFE	Sedalia, MO	65301
038	DAVIDS INC	WICHITA KS	67202
039	WESTMINSTER COLLEGE	FULTON MO	65251
040	BIG K BODY SHOP	SEDALIA MO	65301
041	KOVX-KSYM	JOPLIN MO	64801
042	STATE FAIR COMMUNITY COLLEGE	SEDALIA MO	65301
043	YORK ELECTRONICS	SEDALIA MO	65301
044	THE FRIAR	SEDALIA MO	65301
045	B&B SPECIALTIES	SEDALIA MO	65301
046	WINCHELLS DONUT HOUSE	SEDALIA MO	65301
047	TOP BRAND DISTRIBUTORS	SEDALIA MO	65301
048	MISSOURI VALLEY COLLEGE	MARSHALL MO	65340
049	COCA COLA COMPANY	COLUMBIA MO	65201
050	KENTUCKY FRIED CHICKEN	SEDALIA MO	65301
051	SEDALIA SCHOOL DISTRICT =200	SEDALIA MO	65301
052	CAMPBELL HAWTHORNE HOUSE	SEDALIA MO	65301
053	BARKERS CONSTRUCTION CO	SEDALIA MO	65301
054	SEDALIA-DEMORAT-CAPITAL	SEDALIA MO	65301
055	MINNIOLA DAY NURSERY	SEDALIA MO	65301
056	NORTH HIGHWAY 65 RESTAURANT	SEDALIA MO	65301
057	CHANEYS SEED STORE	SEDALIA MO	65301
058	LENGER CHEVROLET	WARRENSBURG MO	64093
059	CRAFT SHOP	SEDALIA MO	65301
060	SOCIAL SECURITY OFFICE	SEDALIA MO	65301

EMPLOYER CODES

061	NORTH AMERICAN VAN LINES	SEDALIA MO	65301
062	MIDWEST AUTO SUPPLY	SEDALIA MO	65301
063	FLAT CREEK VETERINARAN	SEDALIA MO	65301
064	RIVAL MANUFACTURING CO	SEDALIA MO	65301
065	BINGS SUPERMARKET	SEDALIA MO	65301
066	HANDCO SERVICE STATION	SEDALIA MO	65301
067	TG&Y	SEDALIA MO	65301
068	HOWARD CONSTRUCTION CO	SEDALIA MO	65301
069	KINGS FOOD HOST	SEDALIA MO	65301
070	SIRLOIN STOCKADE	SEDALIA MO	65301
071	ARCHIAS SEED STORE	SEDALIA MO	65301
072	PRIDDYS SHOE STORE	SEDALIA MO	65301
073	G-DISCO STORE	SEDALIA MO	65301
074	DEHAVENS TROPICAL FISH	SEDALIA MO	65301
075	FOOD 4 LESS	SEDALIA MO	65301
076	UNIVERSITY OF MISSOURI ROLLA	ROLLA MO	65401
077	MATTINGLYS	SEDALIA MO	65301
078	KENS PIZZA	SEDALIA MO	65301
079	RADIO SHACK	SEDALIA MO	65301
080	NORMAN STEVEN COMPANY	SEDALIA MO	65301
081	BEVERLYS RESTAURANT	SEDALIA MO	65301
082	TOWN AND COUNTRY SHOES	SEDALIA MO	65301
083	JOES HEATING AND AIR CONDITIONING	SEDALIA MO	65301
084	SAMBOS	SEDALIA MO	65301
085	BILL PITTMAN FARM	SEDALIA MO	65301
086	NORTH WESTERN UNIVERSITY	EVANSTON IL	60201
087	REV CO DRUG	KANSAS CITY MO	64111
088	MCDONALDS	SEDALIA MO	65301
089	DOG AND SUDS	SEDALIA MO	65301
090	JUS PANTS	WICHITA KS	67206
091	RED APPLE BOWLING LANES	SEDALIA MO	65301
092	MEDALLION ELECTRIC	SEDALIA MO	65301
093	C + FLOWER COMPANY	SEDALIA MO	65301
094	GENERAL ADJUSTMENT BUREAU	SEDALIA MO	65301
095	TGA	SEDALIA MO	65301
096	THIRD NATIONAL BANK	SEDALIA MO	65301
097	ASHLEYS OUTLET STORE	SEDALIA MO	65301
098	HOLIDAY INN	SEDALIA MO	65301
099	SEDALIA PUBLIC LIBRARY	SEDALIA MO	65301
100	MASSEY FERGUSON	SEDALIA MO	65301
101	JIMS IMPERIAL	SEDALIA MO	65301
102	MCMILLAN TV	SMITHTON MO	65350
103	MALLORYS BAKERY	SEDALIA MO	65301
104	PAT LOLLA CONSTRUCTION	SEDALIA MO	65301
105	MATT GREEN FARMS	SEDALIA MO	65301
106	WEBER SHOE COMPANY	TIPTON MO	65081
107	PAPA JAKES DONUT SHOP	SEDALIA MO	65301
108	LYNN WAGENKNECHT FARM	SMITHTON MO	65350
109	JOHN SNEED FARM	SEDALIA MO	65301
110	PALMERS TOOL AND SUPPLY	SEDALIA MO	65301
111	SKAGGS DRUG STORE	SEDALIA MO	65301
112	MARK TWAIN RESTAURANT	SEDALIA MO	65301
113	INTERNATIONAL HOUSE OF PANCAKES	COLUMBIA MO	65201
114	HARDYS	SEDALIA MO	65301
115	SEDALIA MERCANTILE BANK	SEDALIA MO	65301
116	LAMPIRTH PLUMBING AND HEATING	SEDALIA MO	65301
117	BANK OF BURTON	BURTON SC	29902
118	SHRINER SERVICE STATION	SEDALIA MO	65301
119	MID-MO DATSUN	SEDALIA MO	65301
120	SEARS	SEDALIA MO	65301

85

EMPLOYER CODES

121	INTERSTATE STUDIO	SEDALIA MO	65301
122	MORGAN FARM	SEDALIA MO	65301
123	DAVIS AUTO SUPPLY	SEDALIA MO	65301
124	PARKHURST MANUFACTURING	SEDALIA MO	65301
125	JIMS TIRE SERVICE	SEDALIA MO	65301
126	DUKE MANUFACTURING	SEDALIA MO	65301
127	FINA SOUTH	SEDALIA MO	65301
128	GRIFFS BURGER BAR	SEDALIA MO	65301
129	MOP N BROOM	SEDALIA MO	65301
130	U S RENTS IT	SEDALIA MO	65301
131	IMPERIAL GAS	SEDALIA MO	65301
132	SOUTHWEST MO STATE UNIVERSITY	SPRINGFIELD MO	65802
133	REST HAVEN REST HOME	SEDALIA MO	65301
134	KIM ORIGINALS	SEDALIA MO	65301
135	PIZZA HUT	SEDALIA MO	65301
136	WALNUT HILLS COUNTRY CLUB	SEDALIA MO	65301
137	FOODLAND	WARSAW MO	65355
138	LEAR & JET INC	KANSAS CITY MO	64108
139	OTASCO	WARSAW MO	65355
140	UNITOG	WARSAW MO	65355
141	FREEMAN HARDWARE	WARSAW MO	65355
142	WETZEL CLINIC	WARSAW MO	65355
143	FURNITURE CITY	CLINTON MO	64735
144	HITES CARPETS	CLINTON MO	64735
145	BABYSITTER	WARSAW MO	65355
146	DEAN YODER CONSTRUCTION	WARSAW MO	65355
147	BARRS FARM	WARSAW MO	65355
148	APCO	WARSAW MO	65355
149	FOODLAND	VERSAILLES MO	65084
150	NEWMANS FOODS	WARSAW MO	65355
151	BENTON R-IX SCHOOL	WARSAW MO	65355
152	BRADEN CONSTRUCTION	WARSAW MO	65355
153	DILLIN BAND	WARSAW MO	65355
154	AT&G	MARSHALL MO	65340
155	AULT SKELLY	MARSHALL MO	65340
156	MATTINGLYS	MARSHALL MO	65340
157	SAM DEPARTMENT STORE	MARSHALL MO	65340
158	MARSHALL STATE SCHOOL & HOSPITAL	MARSHALL MO	65340
159	MENORAH HOSPITAL	KANSAS CITY MO	64106
160	SEARS	MARSHALL MO	65340
161	INTERNATIONAL SHOE COMPANY	MARSHALL MO	65340
162	CENTRAL MISSOURI STATE UNIVERSITY	WARRENSBURG MO	64093
163	HOUSE OF FLOWERS	MARSHALL MO	65340
164	MARSHALL FLORIST AND GREENHOUSE	MARSHALL MO	65340
165	JAMES A DAVIS CONSTRUCTION	MARSHALL MO	65340
166	REEDER AUTO PARTS	MARSHALL MO	65340
167	NELSON ELEVATOR	MARSHALL MO	65340
168	DAVIS FARM INC	MARSHALL MO	65340
169	WILSON AND COMPANY	MARSHALL MO	65340
170	EMPIRE GAS COMPANY	MARSHALL MO	65340
171	BANQUET FOODS CORPORATION	MARSHALL MO	65340
172	FLETCHER GRAIN & SEED CO	MARSHALL MO	65340
173	TG&Y	MARSHALL MO	65340
174	J C PENNEY	MARSHALL MO	65340
175	HAYS SALVAGE	MARSHALL MO	65340
176	KEEHARTS FARMS	MARSHALL MO	65340
177	BURKE & CROSBY VENDING COMPANY	MARSHALL MO	65340
178	MALAN & SULLIVAN INC	MARSHALL MO	65340
179	GAMBLES	MARSHALL MO	65340
180	GULF STATION	MARSHALL MO	65340

86

EMPLOYER CODES

181	GIBSONS DEPARTMENT STORE	MARSHALL MO	65340
182	BARLEYS PLUMBING	MARSHALL MO	65340
183	C&D CONSTRUCTION	MARSHALL MO	65340
184	SIRLOIN STOCKADE	MARSHALL MO	65340
185	MAR-SALINE MANOR	MARSHALL MO	65340
186	A&W DRIVE-IN	MARSHALL MO	65340
187	KANSAS CITY STAR	KANSAS CITY MO	64108
188	STATE FARM INSURANCE	COLUMBIA MO	65201
189	C & H AUTO SALVAGE	MARSHALL MO	65340
190	IGA	MARSHALL MO	65340
191	DR C E KAVANAUGH DDS	KANSAS CITY MO	64108
192	WOODIE O'DELLS SERVICE STATION	MARSHALL MO	65340
193	SARLEYS RESTAURANT	MARSHALL MO	65340
194	WESTVIEW RESORT	LAKE OF THE OZARKS MO	65326
195	CORPS OF ENGINEERS	WARSAW MO	65355
196	FATHERS FARM	MARSHALL MO	65340
197	FATHERS FARM	LINCOLN MO	65338
198	PRIMO PANTS	VERSAILLES MO	65084
199	PAULS DX STATION	COLE CAMP MO	65325
200	MFA IMPLEMENT	LINCOLN MO	65338
201	GOOD SAMARITAN NURSING HOME	COLE CAMP MO	65325
202	K J MEDICAL CENTER	KANSAS CITY MO	64108
203	FATHERS FARM	COLE CAMP MO	65325
204	LINCOLN LOCKER	LINCOLN MO	65338
205	GOLDEN VALLEY NURSING HOME	STOVER MO	65078
206	FATHERS FARM	SEDALIA MO	65301
207	WK GARAGE	COLE CAMP MO	65325
208	BORMAN OIL CO	COLE CAMP MO	65325
209	SWIFT AND COMPANY	SEDALIA MO	65301
210	ROBERT A TREVNER MASONRY CO	SEDALIA MO	65301
211	VIEBROCK WELDING	COLE CAMP MO	65325
212	HERBS MOTOR SERVICE	COLE CAMP MO	65325
213	GURNEYS SEED FARM	YANKTON SD	57078
214	HABCO	NORTH KANSAS CITY MO	64116
215	MISSOURI SEED COMPANY	GREEN RIDGE MO	65332
216	SKI RESORT	COPPER MT CO	80302
217	REEDS JEWELRY	SEDALIA MO	65301
218	SCHREINER SERVICE STATION	SEDALIA MO	65301
219	LINCOLN LIFE INSURANCE COMPANY	FT WAYNE IN	46805
220	FATHERS FARM KABLER	SEDALIA MO	65301
221	FATHERS FARM HUNTER	SEDALIA MO	65301
222	FATHERS FARM PALMER	SEDALIA MO	65301
223	MCDONALDS RESTAURANT	COLUMBIA MO	65201
224	STATE FAIR TWIN CINEMA	SEDALIA MO	65301
225	HOUSTON CONTRACTING CO	FAIRBANKS AL	99701
226	DOVE FARMS	GREEN RIDGE MO	65332
227	LEONARD HOWERY FARM	IONIA MO	65335
228	CHAMBER OF COMMERCE	WARRENSBURG MO	64093
230	BRYANT MOTOR COMPANY	SEDALIA MO	65301
231	BLACKBURN ELECTRICAL CO	FT WORTH TX	76101
232	JANE MCELROY	SEDALIA MO	65301
233	HUGHESVILLE LOCKER	HUGHESVILLE MO	65334
234	FORTUNE FARMS	SEDALIA MO	65301
235	STUCKEYS RESTAURANTS	ROUTE J I-70	65340
236	RIVAL MANUFACTURING CO	SWEET SPRINGS MO	65351
237	FIRST STATE SAVINGS BANK	SEDALIA MO	65301
238	CENTRAL MO SALE BARN & RAMEY FARMS	SEDALIA MO	65301
239	GERALD SMITH MECHANIC	HUGHESVILLE MO	65334
240	MAXINES RESTAURANT	SEDALIA MO	65301
241	OASIS CAFE	JCT 65 & I 70	65340

APPENDIX E

EMPLOYERS OF 1975 GRADUATES

EMPLOYERS OF THE 1975 GRADUATES OF WARSAW

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
APCO	1	0	0	0
BABYSITTER	0	1	0	0
BARRS FARM	1	0	0	0
BENTON R-IX SCHOOL	0	1	0	0
BRADEN CONSTRUCTION	1	0	0	0
CORPS OF ENGINEERS	0	0	1	0
DEAN YODER CONSTRUCTION	1	0	0	0
FOODLAND	2	0	0	0
FREEMAN HARDWARE	1	0	0	0
FURNITURE CITY	1	0	0	0
HITES CARPETS	1	0	0	0
LEAR & JET INC	1	0	0	0
MCGRAW-EDISON CO	1	0	0	0
NEWMANS FOODS	1	0	0	0
OTASCO	1	0	1	0
RED APPLE BOWLING LANES	0	0	1	0
UNITOG	0	3	0	0
WESTVIEW RESORT	0	1	0	0
WETZEL CLINIC	0	1	0	0

EMPLOYERS OF THE 1975 GRADUATES OF LINCOLN

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
ASC AGRICULTURE STABILIZATION COMM	1	0	0	0
ATCHISON CONSTRUCTION COMPANY	1	0	0	0
BEULAHS HIGH FASHION	0	1	0	0
BOTHWELL MEMORIAL HOSPITAL	0	1	0	0
CONSTRUCTION COMPANY	1	0	0	0
FAJENS GUNSTOCKS	1	0	0	0
FARMERS BANK OF LINCOLN	0	1	0	0
FATHERS CONSTRUCTION CO	1	0	0	0
FATHERS FARM	0	0	2	0
JOHN DEERE IMPLEMENT	1	0	0	0
KERR-MCGEE STATION	1	0	0	0
MAYFIELD SEED COMPANY	1	0	0	0
MFA GROCERY	1	0	0	0
RIVAL MANUFACTURING CO	0	1	0	0
WORKS FOR FATHER	0	0	1	0

EMPLOYERS OF THE 1975 GRADUATES OF COLE CAMP

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
BORMAN OIL CO	1	0	0	0
FATHERS FARM	1	0	1	0
GOLDEN VALLEY NURSING HOME	0	1	0	0
GOOD SAMARITAN NURSING HOME	0	3	0	0
GURNEYS SEED FARM	1	0	0	0
HABCO	1	0	0	0
HERBS MOTOR SERVICE	0	0	1	0
K U MEDICAL CENTER	1	0	0	0
LINCOLN LOCKER	0	1	0	0
MFA IMPLEMENT	1	0	0	0
PAULS DX STATION	1	0	0	0
PRIMO PANTS	0	1	0	0
ROBERT A TREVNER MASONRY CO	1	0	0	0
SOCIAL SECURITY OFFICE	0	0	0	1
SWIFT AND COMPANY	1	0	0	0
VIEBROCK WELDING	1	0	0	0
WK GARAGE	1	0	0	0

EMPLOYERS OF THE 1975 GRADUATES OF GREEN RIDGE

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
BLACKBURN ELECTRICAL CO	1	0	0	0
BRYANT MOTOR COMPANY	1	0	0	0
CHAMBER OF COMMERCE	0	0	0	1
HOUSTON CONTRACTING CO	1	0	0	0
LEONARD HOWERY FARM	1	0	0	0
MCGRAW-EDISON CO	0	4	0	0
PARKHURST MANUFACTURING	1	0	0	0
RIVAL MANUFACTURING CO	1	0	0	0
SEARS	0	1	0	0
SKAGGS DRUG STORE	0	1	0	0

EMPLOYERS OF THE 1975 GRADUATES OF LA MONTE

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
EDDIE MINOR	1	0	0	0
LA MONTE CITY DEPARTMENT	1	0	0	0
LAMY MFG CO	0	1	0	0
MCGRAW-EDISON CO	0	0	0	1
PENNEYS	0	1	0	0
PHARMACY	0	0	0	1
RIVAL MANUFACTURING CO	0	1	0	0
SAMBOS	1	0	0	0
VETERINARY CENTER	1	0	0	0
WHITEMAN AIR FORCE BASE	0	1	0	0

EMPLOYERS OF THE 1975 GRADUATES OF SMITHTON

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
JIMS IMPERIAL	0	0	1	0
JOHN SNEED FARM	1	0	0	0
LYNN WAGENKNECHT FARM	1	0	0	0
MASSEY FERGUSON	1	0	0	0
MATT GREEN FARMS	0	0	1	0
MCMILLAN TV	1	0	0	0
NORTH HIGHWAY 65 RESTAURANT	0	1	0	0
PAPA JAKES DONUT SHOP	0	0	0	1
PAT LOLLA CONSTRUCTION	0	0	1	0
PITTSBURG CORNING CO	0	0	0	1
RIVAL MANUFACTURING CO	0	1	0	0
STATE FAIR COMMUNITY COLLEGE	0	0	0	1
TG&Y	0	1	0	0
WEBER SHOE COMPANY	1	0	0	0

EMPLOYERS OF THE 1975 GRADUATES OF SACRED HEART

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
BILL GREER MOTORS	1	0	0	0
CONSUMERS MARKET	0	0	1	0
DR GARY EVERT	0	1	0	0
FLAT CREEK INN	0	0	0	1
HOMEMAKERS FURNITURE	0	0	0	1
OLD MISSOURI HOMESTEAD	0	1	0	0
PENNEYS	0	0	1	0
PIONEER PRINTING	0	1	0	0
PITTSBURG CORNING CO	0	1	0	0
RUSSELL BROTHERS	0	0	1	0
WESTERN AUTO	0	0	1	0
WESTMORELAND COUNTRY CLUB	0	0	1	0

EMPLOYERS OF THE 1975 GRADUATES OF NORTHWEST

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
BINGS SUPERMARKET	0	0	1	0
BOTHWELL MEMORIAL HOSPITAL	0	1	0	0
CENTRAL MISSOURI STATE UNIVERSITY	0	0	0	1
CENTRAL MO SALE BARN & RAMEY FARMS	1	0	0	0
FIRST STATE SAVINGS BANK	0	1	0	0
GERALD SMITH MECHANIC	0	0	1	0
HUGHESVILLE LOCKER	1	0	0	0
JANE MCELROY	0	0	0	1
MAXINES RESTAURANT	0	0	0	1
MCGRAW-EDISON CO	0	2	0	0
OASIS CAFE	0	1	0	0
RIVAL MANUFACTURING CO	1	2	0	0
SEDALIA-DEMORAT-CAPITAL	1	0	0	0
STUCKEYS RESTAURANTS	0	1	0	0

EMPLOYERS OF THE 1975 GRADUATES OF SMITH-COTTON

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
ARCHIAS SEED STORE	0	1	0	1
ASHLEYS OUTLET STORE	0	1	0	0
B&B SPECIALTIES	0	1	0	0
BANK OF BURTON	0	1	0	0
BARKERS CONSTRUCTION CO	1	0	0	0
BEVERLYS RESTAURANT	1	0	0	1
BIG K BODY SHOP	1	0	0	0
BILL PITTMAN FARM	1	0	0	0
BINGS SUPERMARKET	3	0	2	0
BOTHWELL MEMORIAL HOSPITAL	1	2	0	1
C W FLOWER COMPANY	0	1	0	1
CAMPBELL HAWTHORNE HOUSE	0	0	0	1
CHANEYS SEED STORE	0	0	1	0
COCA COLA COMPANY	1	0	0	0
CONSUMERS MARKET	5	0	0	0
CRAFT SHOP	0	1	0	0
DAVIDS INC	0	1	0	0
DAVIS AUTO SUPPLY	1	0	0	0
DEMAVENS TROPICAL FISH	0	0	1	0
DOG AND SUDS	1	0	1	0
DR GARY EVERT	0	1	0	0
DUKE MANUFACTURING	1	0	0	0
FATHERS FARM HUNTER	0	0	1	0
FATHERS FARM KABLER	1	0	0	0
FINA SOUTH	1	0	0	0
FLAT CREEK VETERINARAN	1	0	0	0
FOOD 4 LESS	0	0	1	0
G-DISCO STORE	0	0	0	1
GENERAL ADJUSTMENT BUREAU	0	0	0	1
GRIFFS BURGER BAR	1	0	0	0
HANOCO SERVICE STATION	1	0	0	0
HARDYS	1	0	0	1
HOLIDAY INN	0	1	0	1
HOWARD CONSTRUCTION CO	1	0	0	0
IGA	0	0	1	0
IMPERIAL GAS	1	0	0	0
INTERNATIONAL HOUSE OF PANCAKES	0	0	1	0
INTERSTATE STUDIO	0	2	1	0
JIMS TIRE SERVICE	1	0	0	0
JOES HEATING AND AIR CONDITIONING	1	0	0	0
JUS PANTS	0	1	0	0
KENS PIZZA	0	0	1	0
KENTUCKY FRIED CHICKEN	0	1	2	2
KINGS FOOD HOST	1	0	1	2
KQVX-KSYN	1	0	0	0
LAMBIRTH PLUMBING AND HEATING	1	0	0	0
LAMY MFG CO	1	1	0	0
LENGER CHEVROLET	1	0	0	0
LINCOLN LIFE INSURANCE COMPANY	0	0	0	1
MALLORYS BAKERY	1	0	0	0

EMPLOYERS OF THE 1975 GRADUATES OF SMITH-COTTON

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
MARK TWAIN RESTAURANT	0	0	1	0
MATTINGLYS	0	0	2	1
MCDONALDS	2	1	1	2
MCDONALDS RESTAURANT	0	0	1	0
MCGRAW-EDISON CO	3	4	0	0
MEDALLION ELECTRIC	0	1	0	0
MID-MO DATSUN	1	0	0	0
MIDWEST AUTO SUPPLY	1	0	0	0
MINNIOLA DAY NURSERY	0	0	0	1
MISSOURI SEED COMPANY	1	0	0	0
MISSOURI VALLEY COLLEGE	0	0	0	1
MORAN BROOM	0	0	1	0
MORGAN FARM	0	0	1	0
NORMAN STEVEN COMPANY	1	0	0	0
NORTH AMERICAN VAN LINES	1	0	0	0
NORTH HIGHWAY 65 RESTAURANT	0	2	0	0
NORTH WESTERN UNIVERSITY	0	0	1	0
NURSING HOME	0	1	0	0
OLD MISSOURI HOMESTEAD	0	1	0	0
PALMERS TOOL AND SUPPLY	1	0	0	0
PARKHURST MANUFACTURING	1	0	0	0
PENNEYS	1	1	0	1
PIT STOP CAFE	0	1	0	0
PITTSBURG CORNING CO	1	0	0	0
PIZZA HUT	0	0	1	0
PRIDDYS SHOE STORE	0	1	0	0
RADIO SHACK	1	0	0	0
RED APPLE BOWLING LANES	0	0	1	0
REEDS JEWELRY	0	0	1	0
REST HAVEN REST HOME	0	0	0	1
REV CO DRUG	0	1	0	0
RIVAL MANUFACTURING CO	2	1	0	0
SAMBOS	0	2	0	0
SCHREINER SERVICE STATION	0	0	1	0
SEARS	0	0	0	1
SEDALIA MERCANTILE BANK	0	1	0	0
SEDALIA PUBLIC LIBRARY	0	0	0	2
SEDALIA SCHOOL DISTRICT #200	2	1	0	0
SEDALIA-DEMORAT-CAPITAL	0	0	1	0
SHRINEN SERVICE STATION	1	0	0	0
SIRLOIN STOCKADE	0	0	0	2
SKAGGS DRUG STORE	1	1	0	0
SKI RESORT	0	0	0	1
SOCIAL SECURITY OFFICE	0	0	0	1
SOUTHWEST MO STATE UNIVERSITY	0	0	0	1
STATE FAIR COMMUNITY COLLEGE	0	0	0	1
STATE FAIR TWIN CINEMA	1	0	0	0
TG&Y	0	1	0	3
THE FRIAR	0	0	1	0
THIRD NATIONAL BANK	0	1	0	0

EMPLOYERS OF THE 1975 GRADUATES OF SMITH-COTTON

EMPLOYER NAME	** FULL TIME **		** PART TIME **	
	MALE	FEMALE	MALE	FEMALE
TOP BRAND DISTRIBUTORS	1	1	0	0
TOWN AND COUNTRY SHOES	0	1	0	1
U S RENTS IT	1	0	0	0
UNIVERSITY OF MISSOURI ROLLA	0	0	1	0
WALNUT HILLS COUNTRY CLUB	0	0	1	0
WESTMINSTER COLLEGE	0	0	1	0
YORK ELECTRONICS	1	0	0	0

EMPLOYERS OF THE 1975 GRADUATES OF MARSHALL

EMPLOYER NAME	** FULL TIME ** MALE	FEMALE	** PART TIME ** MALE	FEMALE
A&W DRIVE-IN	0	0	1	0
AT&G	1	0	0	0
AULT SKELLY	1	0	0	0
BANQUET FOODS CORPORATION	3	0	0	0
BARLEYS PLUMBING	1	0	0	0
BURKE & CROSBY VENDING COMPANY	1	0	0	0
C & H AUTO SALVAGE	1	0	0	0
C&D CONSTRUCTION	1	0	0	0
CENTRAL MISSOURI STATE UNIVERSITY	0	0	1	1
DR C E KAVANAUGH DDS	0	1	0	0
EMPIRE GAS COMPANY	0	1	0	0
FATHERS FARM	2	0	0	0
FLETCHER GRAIN & SEED CO	1	0	0	0
GAMBLES	0	0	0	1
GIBSONS DEPARTMENT STORE	0	2	0	0
GULF STATION	1	0	0	0
HAYS SALVAGE	1	0	0	0
HOUSE OF FLOWERS	0	1	0	0
IGA	0	0	1	0
INTERNATIONAL SHOE COMPANY	1	2	0	0
J C PENNEY	0	1	0	0
JAMES A DAVIS CONSTRUCTION	1	0	0	0
KANSAS CITY STAR	0	1	0	0
KEEHARTS FARMS	1	0	0	0
MALAN & SULLIVAN INC	0	1	0	0
MAR-SALINE MANOR	0	1	0	0
MARSHALL FLORIST AND GREENHOUSE	0	1	0	0
MARSHALL STATE SCHOOL & HOSPITAL	2	4	0	1
MATTINGLYS	0	2	0	0
MENORAH HOSPITAL	1	0	0	0
NELSON ELEVATOR	1	0	0	0
REEDER AUTO PARTS	1	0	0	0
SAM DEPARTMENT STORE	0	1	0	0
SARLEYS RESTAURANT	0	1	0	0
SEARS	1	0	0	0
SIRLOIN STOCKADE	0	1	0	0
STATE FARM INSURANCE	0	1	0	0
TG&Y	0	3	0	0
WILSON AND COMPANY	3	1	0	0
WOODIE O'DELLS SERVICE STATION	1	0	0	0

APPENDIX F

POST-SECONDARY INSTITUTIONS ATTENDED BY 1975 GRADUATES

1975 WARSAW GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	9	2 SECRETARIAL TRAINING 2 ELECTRONIC TECHNOLOGY 1 AGRICULTURE 1 UNDECIDED 1 LAW ENFORCEMENT 1 ENGLISH 1 UNDECIDED
SOUTHWEST MO STATE UNIVERSITY SPRINGFIELD MO	4	1 RELIGION 1 RECREATION-WOMEN 2 UNDECIDED
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	7	1 SECRETARIAL TRAINING 1 ENGLISH 1 JOURNALISM 1 HISTORY 1 ACCOUNTING 1 BUSINESS ADMINISTRATION 1 UNDECIDED
SCHOOL OF THE OZARKS BRANSON MO	1	1 COMPUTER TECHNOLOGY

1975 LINCOLN GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	6	1 SECRETARIAL TRAINING 1 ELECTRONIC TECHNOLOGY 2 AGRICULTURE 1 ACCOUNTING 1 NUCLEAUR MEDICINE
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	7	1 ARCH DRAFT TECH 1 PRE-DENTAL 1 GENERAL ART 1 INDUSTRIAL TECHNOLOGY 1 EDUCATION 1 HISTORY 1 UNDECIDED
BURGE SCHOOL OF NURSING SPRINGFIELD MO	1	1 NURSING

1975 COLE CAMP GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	10	2 PRACTICAL NURSING 1 SECRETARIAL TRAINING 1 AUTOMOTIVE TECHNOLOGY 1 WELDING 2 AGRICULTURE-BUSINESS 1 ACCOUNTING 1 PRE-MEDICAL 1 BIOLOGY
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	2	1 CRIMINAL JUSTICE ADMIN 1 UNDECIDED
SOUTHWEST BAPTIST BIBLE COLLEGE BOLIVAR MO	1	1 BIOLOGY
UNIVERSITY OF MISSOURI COLUMBIA COLUMBIA MO	1	1 LIBRARY SCIENCE
SCHOOL OF THE OZARKS BRANSON MO	1	1 RELIGION
WILLIAM WOODS COLLEGE FULTON MO	1	1 PSYCHOLOGY
ST PAUL'S COLLEGE CONCORDIA MO	1	1 SECRETARIAL TRAINING

1975 GREEN RIDGE GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	6	1 HIGH SCHOOL COMPLETION 3 SECRETARIAL TRAINING 1 MUSIC 1 UNDECIDED
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	6	1 SECRETARIAL TRAINING 2 HOME EC TEXTILES 2 PHYSICAL EDUCATION 1 ACCOUNTING
UNIVERSITY OF MISSOURI COLUMBIA COLUMBIA MO	2	1 PRE-MEDICAL 1 AGRICULTURE

1975 LA MONTE GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	8	1 SECRETARIAL TRAINING 2 WELDING 1 EL ED - CHILD DEV 1 SPEECH & DRAMA 3 UNDECIDED
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	3	1 SECRETARIAL TRAINING 1 ANIMAL SCIENCE 1 SPEECH
GOODLAND MECHANICAL SCHOOL GOODLAND KS	1	1 AUTOMOTIVE TECHNOLOGY
UNIVERSITY OF MISSOURI COLUMBIA COLUMBIA MO	1	1 AGRICULTURE

1975 SMITHTON GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	9	4 SECRETARIAL TRAINING 1 ELECTRONIC TECHNOLOGY 1 ACCOUNTING 1 CONSERVATION 2 LIBERAL ARTS
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	5	1 PUBLIC RELATIONS 1 PHYSICAL EDUCATION 1 MUSIC 2 UNDECIDED
BURGE SCHOOL OF NURSING SPRINGFIELD MO	1	1 NURSING
UNIVERSITY OF MISSOURI COLUMBIA COLUMBIA MO	1	1 NURSING
COLUMBIA COLLEGE COLUMBIA MO	3	1 ENGINEERING 2 UNDECIDED
UNIVERSITY OF MISSOURI ROLLA ROLLA MO	1	1 ENGINEERING
AMERICAN CHRISTIAN COLLEGE TULSA OK	1	1 UNDECIDED

1975 SACRED HEART GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	8	1 ELECTRICITY ELECTRONICS 1 EL ED - CHILD DEV 1 PHYSICAL EDUCATION 1 BUSINESS 4 UNDECIDED
SOUTHWEST MO STATE UNIVERSITY SPRINGFIELD MO	1	1 UNDECIDED
TEXAS CHRISTIAN UNIVERSITY FORTWORTH TX	1	1 BUSINESS
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	5	1 SECRETARIAL TRAINING 2 PHYSICAL EDUCATION 1 CHEMISTRY 1 UNDECIDED
CREIGTON UNIVERSITY OMAHA NE	1	1 BIOLOGY
TEXAS TECH LUBBOCK TX	1	1 SPEECH
ST LUKES HOSP SCHOOL OF NURSING KANSAS CITY MO	1	1 NURSING

1975 NORTHWEST GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	7	1 SECRETARIAL TRAINING 1 AGRICULTURE 1 AGRICULTURE-BUSINESS 1 ACCOUNTING 1 BUSINESS MANAGEMENT 1 EDUCATION 1 UNDECIDED
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	3	1 HOME ECONOMICES 1 ENGLISH 1 MUSIC EDUCATION

1975 SMITH-COTTON GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	95	3 SECRETARIAL TRAINING
		1 AUTOMOTIVE TECHNOLOGY
		4 PRACTICAL NURSING
		1 SPECIAL EDUCATION
		1 MGMT & DISTRIB ED
		11 SECRETARIAL TRAINING
		2 AUTOMOTIVE TECHNOLOGY
		2 ELECTRONIC TECHNOLOGY
		1 WELDING
		3 AGRICULTURE
		1 AGRICULTURE-BUSINESS
		4 DRAFTING TECHNOLOGY
		1 INHULATION THERAPY
		1 SPECIAL EDUCATION
		2 ACCOUNTING
		1 MGMT & DISTRIB ED
		1 MID-MANAGEMENT
		2 BUSINESS MANAGEMENT
		1 UNDECIDED
		1 LAW ENFORCEMENT
		1 PRE-VET MEDICINE
		1 AGRICULTURE-BUSINESS
		1 HORTICULTURE
		1 WILDLIFE CONSERVATION
		1 CONSERVATION
		1 GENERAL ART
		1 NURSING
		1 X-RAY TECH
		4 EL ED - CHILD DEV
		1 PHYSICAL EDUCATION
		1 COACHING
		4 MUSIC
		1 GENETICS
		3 BIOLOGY
		1 MEDICAL TECHNOLOGY
		1 EARTH SCIENCE
		4 ACCOUNTING
		4 BUSINESS
		2 BUSINESS ADMINISTRATION
		17 UNDECIDED
SOUTHWEST MO STATE UNIVERSITY SPRINGFIELD MO	7	1 ART-ALLIED ARTS
		1 INDUSTRIAL SAFETY
		1 COACHING
		1 MEDICAL TECHNOLOGY
		3 UNDECIDED

1975 SMITH-COTTON GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
SOUTHWEST BAPTIST BIBLE COLLEGE BOLIVAR MO	1	1 SPECIAL EDUCATION
MISSOURI VALLEY COLLEGE MARSHALL MO	2	1 PHYSICAL EDUCATION 1 ACCOUNTING
UNIVERSITY OF MISSOURI COLUMBIA COLUMBIA MO	13	1 PRE-LAW 1 CIVIL ENGINEERING 2 CHEMICAL ENGINEER 3 ENGINEERING 1 AGRICULTURE 1 BIOLOGY 1 BUSINESS 1 BUSINESS ADMINISTRATION 2 UNDECIDED
BEAUTY SCHOOL EXCELSIOR SPRINGS MO	1	1 COSMETOLOGY
COLUMBIA COLLEGE COLUMBIA MO	1	1 BUSINESS
ARIZONA STATE UNIVERSITY TEMPE AZ	1	1 UNDECIDED
INTERNATIONAL COLLEGE FORT WAYNE IN	1	1 ACCOUNTING
UNIVERSITY OF MISSOURI ROLLA ROLLA MO	3	1 ELECTRICAL ENGINEERING 1 CHEMICAL ENGINEER 1 AEROSPACE ENGINEER
WILLIAM JEWELL COLLEGE LIBERTY MO	1	1 MUSIC THERAPY
UNIVERSITY OF MO - KANSAS CITY KANSAS CITY MO	1	1 MEDICAL TECHNOLOGY
NORTH WESTERN UNIVERSITY EVANSTON IL	1	1 MUSIC
BAPTIST BIBLE COLLEGE SPRINGFIELD MO	1	1 MUSIC
N E OKLAHOMA STATE COLLEGE TAHLEQUAH OK	1	1 UNDECIDED

COLLEGE	STUDENTS	CURRICULUM
ST JOHN'S COLLEGE WINFIELD KS	1	1 UNDECIDED

1975 MARSHALL GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
STATE FAIR COMMUNITY COLLEGE SEDALIA MO	3	1 SECRETARIAL TRAINING 2 AGRICULTURE
SOUTHWEST MO STATE UNIVERSITY SPRINGFIELD MO	7	1 DENTAL HYGENIST 1 ELEMENTARY EDUCATION 3 ENGLISH 1 MEDICAL TECHNOLOGY 1 BUSINESS
CENTRAL MISSOURI STATE UNIVERSITY WARRENSBURG MO	22	1 AUTOMOTIVE TECHNOLOGY 1 DRAFTING TECHNOLOGY 1 ELECTRONIC TECHNOLOGY 4 AGRICULTURE 2 ELEMENTARY EDUCATION 1 ENGLISH 1 ENGLISH-JOURNALISM 1 SPEECH PATHOLOGY SPEC ED 1 PHYSICAL EDUCATION 2 RECREATION 2 MUSIC 2 MATHEMATICS 1 CRIMINAL JUSTICE ADMIN 1 BUSINESS EDUCATION 1 ACCOUNTING
ST LUKES HOSP SCHOOL OF NURSING KANSAS CITY MO	1	1 NURSING
SEDALIA SCHOOL OF BEAJTY SEDALIA MO	1	1 COSMETOLOGY
SOUTHEAST MO STATE UNIVERSITY CAPE GIRARDEAU MO	1	1 PHYSICAL EDUCATION
DENVER UNIVERSITY DENVER CO	1	1 THEATRE
MISSOURI SOUTHERN UNIVERSITY JOPLIN MO	1	1 GENERAL ART
AIR FORCE ACADEMY COLORADO SPRINGS CO	1	1 ELECTRICAL ENGINEERING
LINCOLN UNIVERSITY JEFFERSON CITY MO	2	1 PHYSICAL EDUCATION 1 BUSINESS
WESTMINSTER COLLEGE FULTON MO	1	1 PRE-MEDICAL

1975 MARSHALL GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
SOUTHWEST BAPTIST BIBLE COLLEGE BOLIVAR MO	5	1 THEOLOGY 1 RELIGION 2 ENGLISH 1 FOREIGN LANGUAGE
MISSOURI VALLEY COLLEGE MARSHALL MO	12	1 EDUCATION 2 ELEMENTARY EDUCATION 2 SPECIAL EDUCATION 1 MATHEMATICS 1 MATH ED SECONDARY 1 SOCIAL STUDIES 1 HISTORY 1 SOCIAL WORK 2 BUSINESS
UNIVERSITY OF MISSOURI COLUMBIA COLUMBIA MO	8	2 PRE-MEDICAL 1 PRE-LAW 1 CONSERVATION 1 HOME ECONOMICES 1 GENERAL RECREATION 1 CHEMISTRY 1 BUSINESS
COLUMBIA COLLEGE COLUMBIA MO	2	1 INTERIOR DESIGN 1 MGMT & DISTRIB ED
UNIVERSITY OF MO - KANSAS CITY KANSAS CITY MO	1	1 PRE-DENTAL
NORTH WESTERN UNIVERSITY EVANSTON IL	1	1 MUSIC
MID-AMERICAN NAZARENE COLLEGE OLATHE KS	2	1 THEOLOGY 1 RELIGION
GATEWAY COLLEGE ST LOUIS MO	1	1 MUSIC
OZARK BIBLE INSTITUTE NEOSHO MO	1	1 RELIGION
MT ST JOSEPH CORK IRELAND	1	1 THEOLOGY
CENTRAL METHODIST COLLEGE FULTON MO	1	1 MUSIC

1975 MARSHALL GRADUATES ATTENDING COLLEGE BY MAJOR

COLLEGE	STUDENTS	CURRICULUM
LINN TECHNICAL LINN MO	1	1 ELECTRONIC TECHNOLOGY
LILLE UNIVERSITY LILLE FRANCE	1	1 PRE-MEDICAL
TARIKO COLLEGE TARIKO MO	1	1 PHYSICAL EDUCATION
STEPHENS COLLEGE COLUMBIA MO	1	1 ENGLISH

CE 009 682

ACCESSION NUMBER: VT103576

PUBLICATION DATE: 28JUN76

TITLE: NURSING AND AUXILIARY NURSING ARTICULATION.

PERSONAL AUTHOR: DAMBACH, KAREN

DESCRIPTOR: ARTICULATION (PROGRAM); *NURSING; *TASK ANALYSIS; WORKSHOPS; *CURRICULUM DEVELOPMENT; PRACTICAL NURSING; TECHNICAL EDUCATION; POST SECONDARY EDUCATION; *PERFORMANCE BASED EDUCATION; *INDIVIDUALIZED PROGRAMS; PROGRAM DESCRIPTIONS

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 153P.

ABSTRACT: THE PURPOSE OF THIS PROJECT WAS TO DEVELOP A MODEL NURSING PROGRAM WITH MULTIPLE ENTRY AND EXIT POINTS TO FACILITATE UPWARD MOBILITY AND CONTINUOUS PROGRESS FOR NURSING AND AUXILIARY STUDENTS. MAJOR PROCEDURES INVOLVED PROPOSAL DEVELOPMENT, A WORKSHOP ON CURRICULUM MODULARIZATION, AND A TASK ANALYSIS INVENTORY TO IDENTIFY COMPETENCIES REQUIRED AT VARIOUS LEVELS OF HEALTH CARE. THE MAJOR PORTION OF THE REPORT (139 PAGES) CONSISTS OF APPENDED PROJECT-DEVELOPED MATERIALS, INCLUDING PROPOSALS SUBMITTED TO THE STATE BOARD OF NURSE EXAMINERS CONCERNING ARTICULATION, CURRICULUM REVISION, AND ADVANCED PLACEMENT AND A SUMMARY OF WORKSHOP INFORMATION THAT INCLUDES WORKSHOP AGENDA, DEFINITION, COMPONENTS, AND CONTINGENCIES OF CURRICULUM MODULES, AND WAYS AND COSTS OF MODULE UTILIZATION. ALSO APPENDED IS THE PROJECT-DEVELOPED 15-WEEK COURSE, TRENDS IN NURSING, DESIGNED TO ALLOW FOR INDIVIDUAL SELF-PACING. THE COURSE CONSISTS OF NINE MODULES, EACH CONTAINING PRETEST, OBJECTIVES, LEARNING ALTERNATIVES, AND POSTTEST. A REPORT OF THE TASK ANALYSIS SURVEY APPEARS WITH A DESCRIPTION OF PROCEDURES, DATA ANALYSIS, AND PRESENTATION OF RESULTS. FOR THE SURVEY THE TASKS WERE GROUPED INTO NINE CATEGORIES. THE RESULTS ARE REPORTED FOR EACH CATEGORY BY A BAR GRAPH ILLUSTRATING THE PERCENTAGE RESPONSE OF COMPETENCIES BY TASKS EXPECTED OF A HEALTH ASSISTANT, LICENSED PRACTICAL NURSE, OR REGISTERED NURSE. (NJ)

INSTITUTION NAME: BUTLER COUNTY COMMUNITY COLL., PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPT. OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT 103 576

BEST COPY AVAILABLE

NURSING AND AUXILIARY NURSING ARTICULATION
(Project No. 19-5815)

Cont. of 19-3036

Karen Dambach

BUTLER COUNTY COMMUNITY COLLEGE

BUTLER, PENNSYLVANIA

June 28, 1976

PENNSYLVANIA DEPARTMENT OF EDUCATION

BUREAU OF VOCATIONAL EDUCATION

RESEARCH COORDINATING UNIT

VT 103 576

12863
c. 1972

John W. Bacon
Director of Institutional
Research and Management
Information Systems.

2

TABLE OF CONTENTS

I. INTRODUCTION TO PREVIOUS STUDY RESULTS 1974-1975 1

A. General Information 1
B. Hypotheses and Objectives 2
C. Data Collection 2
D. Findings 3
E. Summary and Conclusions 5
F. Recommendations 6

II. CURRENT STUDY 1975-1976 7

A. General Information 7
B. Objectives 7
C. Procedure for Data Collection 8
D. Findings 8
E. Summary and Conclusions 10

III. APPENDICES

A. Advanced Standing Proposals submitted to State Board of Nurse Examiners
B. Modular Workshop Report
C. Trends in Nursing Module
D. Task Analysis Inventory Report

IV. SUPPLEMENT

A. Computer Assisted Basic Arithmetic Module

FINAL REPORT

I. INTRODUCTION TO PREVIOUS STUDY RESULTS 1974-1975

A. General Information

This project was originally initiated in October of 1974. The proposal was submitted for funding to study the problems existing between training institutions and levels of training and to develop a model program that would support a philosophy of "continuous progress."

The need for the project was based on several factors. First, in 1974 the State Board of Nurse Examiners for the Commonwealth of Pennsylvania had fully or initially approved 18 schools to offer a Baccalaureate Degree in Nursing; 15 schools to offer an Associate Degree in Nursing, 83 schools to offer a diploma in nursing and 59 schools preparing practical nurses. Secondly, many area vocational-technical schools or public secondary schools offered programs in auxiliary nursing fields. Thirdly, each of these programs offered courses designed to produce graduates with competencies commensurate with the levels expected by a particular nursing or auxiliary nursing field. Within the levels expected by educators and employers there are competencies common to all levels. Despite the commonality of competencies, it was difficult for students who wished to transfer from one level to another, or from one program to another, to receive credit for previous knowledge and skills.

Butler County Community College has a career ladder LPN/ADN program, designed to prepare competent practitioners at two levels; Licensed Practical Nurse and Associate Degree Nurse. Therefore, since the program had already served as an example of innovative education, it was a logical choice for the site of further innovations as suggested in the proposal.

At the completion of the project, the State Board of Nurse Examiners had approved the following schools: 21 Baccalaureate programs, 17 Associate Degree programs, 64 diploma programs with two schools scheduled to close in 1976-77, and 52 practical nurse programs. In addition there are 18 programs in auxiliary nursing fields offered by vocational/technical and public secondary schools in western and northwestern Pennsylvania. The changes in the numbers of programs in nursing and auxiliary nursing fields indicate the need to consider a "continuous progress" philosophy.

Prior to the initiation of the project eight schools with various types of nursing programs had expressed an interest in participating in an articulation project. Those interested were:

SCHOOL	PROGRAM
Slippery Rock State College	Baccalaureate
Indiana University of Pennsylvania	Baccalaureate
Villa Marie College	Baccalaureate

Butler County Community College	Career ladder LPN/ADN
Lawrence County Vocational-Technical School	Health Assistant & LPN
Butler High School	Health Assistant
Admiral Perry Vocational School	Health Assistant
Highlands Senior High School	Health Assistant

B. Hypotheses and Objectives

Based on the information from the Butler County Community College program, a general hypothesis was formulated. A student can enter a nursing program at various levels, receive recognition for previous knowledge and skills, and progress to the level his ability and motivation will allow.

From the general hypothesis, the following subhypotheses were developed:

1. A student from a health assistant program should articulate directly into a nursing program and be exempt from the basic nursing course.

2. A student from an associate degree nursing program should articulate directly into a baccalaureate program on the Junior level.

3. Students from other types of nursing programs or health backgrounds should transfer into an associate degree program at various levels.

The project proposal contained three objectives which were derived from the purpose of the proposal submitted for funding of the project.

1. To develop a program that would facilitate the upward mobility of nursing and auxiliary nursing personnel in their educational programs making "continuous progress" possible to whatever level his ability and motivation will allow.

2. To develop a model for northwestern Pennsylvania that would maximize the efforts of training institutions in preparing nursing and auxiliary nursing personnel.

3. To recommend a procedure for implementing an articulation program that would provide for students the possibility of continuous progress without repetition.

C. Data Collection

It was evident that much preliminary work would have to be done preceding the actual proposed study. It was also evident that the study and recommendations would take considerable time. The study was designed to begin July 1, 1974, and continue through June 30, 1975.

However, due to funding notification which delayed hiring of personnel, the project was only in existence from January 6 through June 30 of 1975.

The procedure as written in the project proposal required the following:

1. Appointment of an "institutional" committee representative of the cooperating educational institutions.

2. Presentation of seminars and workshops to the institutional committee directed to develop standards for expressing behavioral or competency level objectives.

3. Appointment of a task force, representative of the nursing and auxiliary nursing market of the northwestern Pennsylvania area. This committee will aid in identifying competencies required at various levels in the nursing and auxiliary fields.

4. Bringing to the program a staff member sufficiently knowledgeable in the field of nursing and auxiliary nursing to coordinate and prepare materials in keeping with the thinking of the task force and the institutional committee.

5. Providing consultants to aid in:

   a. the identification of objectives.
   b. the development of competency measurement instruments.
   c. the development of modules of learning.
   d. the development of overall evaluation instruments.

6. Preparing a final report with recommendations for implementing a "continuous progress" program.

D. Findings

In order to begin discussion on articulation with other programs, it was necessary to review and update course outlines of the nursing program at Butler County Community College. This was done by the project staff and presented to the faculty for approval. As this was done, it became obvious to faculty and the research staff that the entire curriculum would need reviewed and made current before articulation could be discussed. Therefore, most of the time from January through April was utilized to develop a new format for course outlines and to integrate behavioral objectives into the curriculum. After the basic nursing course was approved then contacts were made with individual schools.

The schools with health assistant programs which desired to participate were Highlands High School and Lawrence County Vocational-Technical School. Admiral Perry was visited to observe their program, and later contacted concerning articulation but did not respond to the offer. Butler High School was also contacted, but their program had not begun and was not fully organized.

The tentative proposal for articulation between the two schools and Butler County Community College was that students would be admitted into the first semester of the program and would be exempted from the theory portion of

the basic nursing course, leaving only the clinical experience. Thus, the student would not actually receive credit for his health assistant program. However, being exempt from the theory would free him to have more time for study, or to take an additional course of his own choosing. Another advantage of the free time would be to permit the individual to attend the basic nursing class at any time he desired, or the individual could be required to attend class or a laboratory session if he was performing inadequately in the clinical area. This portion of the project required meeting with the indiviudals involved with the programs and closely comparing their courses and curricula with the initial nursing course at Butler County Community College. This situation has not been completely resolved with the participating schools due to time. Also, such a change requires the approval of the State Board of Nursing.

Articulation of the associate degree nursing program with a baccalaureate nursing program was explored with the nursing departments of Slippery Rock State College and the University of Pittsburgh. The University of Pittsburgh is in the midst of complete curriculum revision and communication will be maintained with them. Slippery Rock State College has developed a pilot program and, at this time, due to admission criteria which include a stipulation of a one year work experience, direct articulation does not seem possible.

Further review of the curriculum concerned comparing the first year or practical nurse component, with the second year, or associate degree nurse component. The first year has 33 credits and a total of 1530 hours. This portion of the program is based on an 18 week semester, to result in the state required 1500 hours for a practical nursing program. A 15 week semester is followed by the other departments of the college. Also, the practical nurse program demonstrates the gap between nursing education and nursing service. Although the practical nurse student receives the basic principles of pharmacology, he may not administer medications in many institutions until he takes an additional pharmacology course of approximately 60 hours. In comparison, the second year of the program has 45 credits and a total of 1245 hours. The student who begins the associate degree track must take independent learning packages in at least 7 areas, while taking the required courses, in order to be eligible for the licensing examination for practical nurse.

One further limitation with the present curriculum is the rigidity of its structure which does not permit the student to take even one elective. Any significant change in the curriculum requires approval by the State Board of Nurse Examiners; therefore, before presenting such revisions to this Board, much work still needs to be done.

Time did not permit working with service institutions to discuss competencies required at various levels in nursing and auxiliary nursing fields. A beginning step was made by sending letters to 45 hospitals and nursing homes to inform them of the project and to request job descriptions for the levels of nursing and auxiliary nursing personnel in their employ. A 44 percent response was received from 20 of 45 institutions.

Various discussions and meetings as well as the assistance of a curriculum consultant, were helpful in assisting the faculty and research staff to identify several issues in curriculum revision and review. Primarily the faculty wished to become more involved in the nursing curriculum process and revision now that much of the preliminary work had been done by the research staff. The issues identified were:

1. Should candidates for the associate degree be held to meet LPN requirements when they serve to inhibit opportunities for elective course or independent study?

2. How can the problem be resolved in making the nursing curriculum more similar to the other college programs and avoid semesters which extend beyond the college calendar? Closely allied with this problem is the lack of adequate planning time for faculty.

3. Should National League for Nursing accreditation be a goal to assist in assuring quality to the program as well as affording the graduate greater opportunity for furthering his professional education?

4. A plan for evaluation should be developed to focus on the program and the revision process.

E. Summary and Conclusions

This study was designed to investigate problems that exist between training institutions and levels of training and to develop a model program that would support a "continuous progress" philosophy. The hypothesis contended that a student could enter a program at various points, receive recognition for past experience and knowledge, and then progress as far as his ability and motivation would allow.

Two health assistant programs, Highlands Area Schools and Lawrence County Vocational-Technical School, participated in the project. Also, two baccalaureate nursing programs, Slippery Rock State College and the University of Pittsburgh were involved. Several limitations influenced this project. The first limitation was the small sample. It was limited for the following reasons:

1. Proximity of other institutions. Most of the other schools who had expressed a desire to participate were not geographically situated for feasible commuting distance.

2. Numbers of students. (a) Due to clinical facilities and number of faculty the number of students that could be admitted on this basis were restricted to 2-3 for each institution. (b) Due to community pressure at this time, the admission policy has been changed to offer priority to county residents.

The second limitation in this project was the inflexibility of the first year curriculum, due to the restrictions imposed on it as a practical nursing program by state regulation.

The third limitation is the criterion for admission to the ADN level of the program which requires the individual from outside the Butler County Community College program to be an LPN. This means that a diploma student, baccalaureate student, medical corpsman or a PN student who has not received licensure cannot be admitted to the ADN program until licensed as an LPN.

Therefore, the approximate percentages in the attainment of the project objectives are as follows:

1. To develop a program that would facilitate the upward mobility of nursing and auxiliary nursing personnel in their educational programs making "continuous progress" possible to whatever level his ability and motivation will allow.	60%
2. To develop a model for northwestern Pennsylvania that would maximize the efforts of training institutions in preparing nursing and auxiliary nursing personnel.	50%
3. To recommend a procedure for implementing an articulation program that would provide for students the possibility of continuous progress without repetition.	50%

F. Recommendations

1. The project should be continued to enable the achievement of the objectives.

2. The actual health needs of the community and surrounding areas should be assessed in determining the levels of nursing and auxiliary nursing personnel needed.

3. The career ladder program at Butler County Community College should be refined to permit multiple points of entrance and exit, and thus permit continuation of education with minimal repetition.

4. The State Board of Nurse Examiners should be consulted concerning: (a) the inflexibility of the 1500 hours in the PN curriculum; (b) clarification of the function of the practical nurse in the administration of medications; and (c) arrangement for more flexibility in the criteria for advanced placement on the PN and ADN levels.

5. The participation of the health care institutions should be solicited in determining competencies required for the levels of nursing and auxiliary nursing personnel.

6. A plan for continuing education after graduation at any of the multiple exits in the nursing curriculum should be developed.

II. CURRENT STUDY 1975-76

A. General Information

Following notification of continuation of the project the initial month was spent in planning for the remaining time of the project, with full-time staff hired in October of 1975.

The first month was utilized to contact and inform former participants of the project that it had been renewed and to send them the summary results to date. The planning also included a possible spring workshop on modularization and a task analysis survey of area hospitals, and nursing homes regarding expected competencies of various levels of personnel. The survey completion date was set for late January 1976 and the workshop for March 26, 1976. The workshop was planned to include a variety of educational institutions such as vocational-technical schools, high schools with allied health programs, hospital schools of nursing, and community colleges with nursing programs. A total of 41 institutions were invited to the workshop with registration limited to 60 persons. The consultant was Fay Bower, from San Jose State University, with her expertise being modularization and innovative teaching/learning strategies.

Further planning was directed toward determination of how to meet the original objectives and if additional objectives were necessary. At this time consideration was also given to the need for writing for funds for proposals that would permit release time for faculty and thus involve them in curriculum evaluation and development of alternative teaching/learning strategies.

B. Objectives

The objectives for the project encompassed the original three objectives as well as additional ones derived from the recommendations of the progress report of June 26, 1975.

1. To develop a program that would facilitate the upward mobility of nursing and auxiliary nursing personnel in their educational programs making "continuous progress" possible to whatever level his ability and motivation will allow.

2. To develop a model for northwestern Pennsylvania that would maximize the efforts of training institutions in preparing nursing and auxiliary nursing personnel.

3. To recommend a procedure for implementing an articulation program that would provide for students the possibility of continuous progress without repetition.

4. To develop a program for continuing education for various levels of health personnel.

5. To develop a proposal of program refinement to permit multiple points of entrance and exit in the career ladder nursing curriculum to submit to the State Board of Nurse Examiners for approval.

C. Procedure for Data Collection

The procedure for collecting data was centered around information concerning the workshop on modularization; the expected competencies of health personnel, and content areas for continuing education.

The procedure required the following:

1. Providing consultants to assist in:

   a. development of alternative learning strategies
   b. grant writing for funding in curriculum evaluation, development of alternative teaching/learning strategies, and continuing education for health care personnel.

2. Contacting health care institutions in northwestern Pennsylvania concerning participation in the task analysis inventory.

3. Formation of a task analysis inventory to utilize as an assessment tool in identifying competencies required at various levels of health care.

4. Formation of questionnaire concerning interest in modularization workshop at Butler County Community College and contacting area educational institutions.

5. Presentation of workshop on modularization as a type of alternative learning strategy.

6. Plan a beginning program in continuing education for various levels of health care personnel.

7. Determine interest and need for continuing education for area health care personnel.

8. Prepare a final report.

D. Findings

Regarding articulation arrangements, the involved programs are those schools with Health Assistant programs. The two schools are Highlands Senior High School in Natrona Heights and Lawrence County Vocational-Technical School in New Castle.

The proposal for articulation with the two schools is that the students shall be admitted into the first semester of the nursing program at Butler County Community College. They will be exempted from

the theory portion of the basic nursing course during this semester, however, they will be required to complete the clinical component. A maximum of six students will be admitted on this basis. To be accepted into the program the students must be recommended by the faculty of the respective school and will be expected to meet the admission criteria of the Butler County Community College program. The two schools may confer with each other concerning the six positions allotted them for advanced standing. Therefore, if one school cannot send its quota of three students, the vacant slot or slots would be available for the other school to utilize if desired. Similar articulation arrangements may be pursued with Butler High School and Butler County Vocational-Technical School pending further development of these programs.

Other proposals submitted to the State Board of Nurse Examiners for approval are a result of recommendations from the previous study. The current curriculum contains 18 credit hours in the first semester. The proposed curriculum revision eliminates Sociology from the PN component of the program making a total of 15 credit hours in the first semester. This revision will permit the student to more logically progress in the load she/he carries.

At the present time students may be admitted to the program on an advanced placement basis during the second semester of the PN component of the curriculum and the summer session of the ADN component. To better demonstrate the philosophy of the career ladder program additional points of entrance have been proposed during the first semester and summer session of the PN component and the third semester of the ADN component.

These proposals concerning articulation, curriculum revision and advanced placement have been submitted to the Board of State Nurse Examiners for approval in order to implement them in August of 1976. These proposals may be found in Appendix A.

Direct articulation at the baccalaureate level is marginally feasible at this time due to the admission criteria of the nursing program at Slippery Rock State College and the incompletion of the revision of the nursing program at the University of Pittsburgh. A future possibility which may be explored is York College of Pennsylvania which plans to begin a nursing program in the fall of 1977.

The workshop survey showed expressed interest on the part of several institutions. Of the 41 institutions contacted, 15 were definitely interested. A total of 51 persons attended, representing 13 institutions with varying types of nursing and auxiliary nursing programs. The agenda for the workshop included the definition of a module, contingencies of modules, components of modules, ways of utilizing modules and cost. A summary of this information is contained in Appendix B.

The course Trends in Nursing was developed in a modular form by the research staff. The course consisted of nine modules, with one module written in two styles. This was presented to the faculty as an example of a learning alternative. The complete module may be found in Appendix C.

The task analysis inventory was formulated to further evaluate and develop curriculum in relationship to competencies expected of various levels of nursing personnel. The results of the survey indicated that the competencies expected of the Registered Nurse, the Licensed Practical Nurse, and the Health Assistant were provided for at the appropriate points of the nursing curriculum at Butler County Community College. Therefore, the career ladder program does provide competencies expected of the Health Assistant during the first semester; the Licensed Practical Nurse competencies are provided for by the end of the first year; and the Registered Nurse competencies are provided for by the end of the program. The only competencies not provided at the Registered Nurse level were in the area of leadership, and the Associate Degree Nurse graduate is not expected to function at that level without additional preparation. The full report of the inventory is contained in Appendix D.

E. Summary and Conclusions

This study was designed to develop a model program in nursing that would support career mobility. Two schools with health assistant programs, Highland Senior High School and Lawrence County Vocational-Technical School participated in the project. Arrangements with baccalaureate nursing programs are only marginally feasible at this time.

The project was influenced by several limitations. The first limitation was the small sample. It was limited for the following reasons:

a. Proximity of other institutions. The two participating schools were the only ones situated within feasible commuting distance.

b. Numbers of students. Due to community pressure regarding admission policies students must be county residents. The exception to this policy will be a maximum of six students form the participating schools.

c. Butler County is in the process of establishing an Area Vocational Technical School. College staff members are currently working with the AVTS director in developing programs directed to full articulators. Included are programs in nursing and medical assistants.

The second limitation in this project was the inflexibility of the first year curriculum due to the restrictions imposed on it as a practical nursing program by state regulations. The only curricular change proposed was the elimination of sociology from the first semester of the program. This change will permit a more logical progression in credit hours for the student.

The third limitation was the criteria for admission to the ADN level of the program which required the individual from outside the Butler County Community College Program to be a Licensed Practical Nurse. However, this limitation will be eliminated if the State Board of Nurse Examiners approves the proposals for advanced placement.*

Therefore, the percentages in the attainment of the project objectives are as follows:

* Exhibit I

1.	To develop a program that would facilitate the upward mobility of nursing and auxiliary nursing personnel in their educational programs making "continuous progress" possible to whatever level his ability and motivation will allow.	99%
2.	To develop a model for northwestern Pennsylvania that would maximize the efforts of training institutions in preparing nursing and auxiliary nursing personnel.	99%
3.	To recommend a procedure for implementing an articulation program that would provide for students the possiblity of continuous progress without repetition.	99%

The above objectives will be fully obtained upon the approval by the State Board of Nurse Examiners.

4.	To develop a program for continuing education for various levels of health personnel.	90% - depending on funding
5.	To develop a proposal of program refinement to permit multiple points of entrance and exit in the career ladder nursing curriculum to submit to the State Board of Nurse Examiners for approval.	95%

Continuing education courses to update and expand knowledge and skills of LPN's and RN's are planned to begin in September of 1976. Further development of the continuing education for all levels of health care personnel will be dependent upon adequate funding.

Exhibit 1

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF STATE
COMMISSIONER OF PROFESSIONAL AND OCCUPATIONAL AFFAIRS
POST OFFICE BOX 2649
HARRISBURG, PA. - 17120

STATE BOARD OF NURSE EXAMINERS
PHONE - 717-787-7374-7375

COMMISSIONER: LOUIS P. VITTI

July 12, 1976

Mrs. Judy A. Garbinski
Interim Coordinator of Nursing
Practical Nursing Program
Butler County Community College
BUtler, PA 16001

Dear Mrs. Garbinski:

At its July 8, 1976 meeting, the State Board of Nurse Examiners reviewed the proposals for the following:

1. Advanced placement policy into the Practical Nursing Program.

2. Advanced placement policy into the Professional Nursing Program.

3. Direct articulation of selected students from health assistant programs.

4. Elimination of Sociology 211 course from the curriculum from the first level of the curriculum.

Action of the Board was to approve all of the above proposals. The Board does request, however, that the word "probably" be deleted from the proposals for advanced placement in the practical nurse and registered nurse programs.

Also, the Board wishes to know what the initials "CGP" stand for in relation to the examination which the applicant will be required to take before final acceptance into the Program with advanced placement.

We wish you the best of success as you implement these proposals.

Sincerely yours,

STATE BOARD OF NURSE EXAMINERS

Geraldine M. Wenger

Geraldine M. Wenger, Secretary

GMW:car
cc: A. Louise Harding
Department of Education

15

APPENDIX A

The following changes and proposals have all been approved by the Academic Affairs Committee and the Professional Organization at Butler County Community College.

We would appreciate the Board's approval to implement these proposals commencing in August, 1976.

SOCIOLOGY ELIMINATION

Rationale: Elimination of Sociology from the required curriculum.

The Nursing Faculty at Butler County Community College has given careful study to the concepts presented in Sociology and has identified most of these in the nursing courses outlines.

Social Problems, Soc 212, has been retained at the second level of the curriculum.

As the curriculum now stands, the nursing student has 18 credit hours during their first semester in the program. With this change, the student would have 15 credit hours. Attached is a revised curriculum reflecting the elimination of Sociology, Soc 211.

This revision still contains the 1500 contact hours required by PN state law, but allows the student to more logically progress in the load she/he carries each semester.

Summer	Credit Hours	Hours/ Week
Nursing III (class) Nu 124		8
Clinical	7	24
Nursing Relationships Nu 126	3	3
	10	35

Fall		
Nursing I (class) Nu 121	5	7
Clinical		17
Anatomy and Physiology I Bio 131	4	5
General Psychology Psy 201	3	3
Nutrition and Diet Therapy Nu 110	3	3
	15	35

Spring		
Nursing II (class) Nu 123	7	6
Clinical		18
English I E 101	3	3
Human Growth and Development Psy 203	3	3
Anatomy and Physiology II Bio 132	4	5
	17	35

ADVANCED STANDING

Rationale: Direct Articulation of Health Assistants from Lawrence County Vocational-Technical and Highlands Senior High is proposed into the first level of the Nursing Program at Butler County Community College.

A maximum of six students would be taken into Nursing I and these students would only complete the clinical component. The Behavioral Objectives in Nursing I have been incorporated and met in their programs.

These students will only be accepted upon the recommendation of the Nursing Faculty of the above two mentioned programs.

If there are no students recommended by Highland Senior High and Lawrence County Nursing Faculty, no students will be accepted into the Butler County Community College program on an advanced standing basis through this specific agreement.

This agreement gives the advanced standing student more time within the curriculum to either take additional course work or concentrate independently on some area in nursing.

If the student is found to have not met some of the objectives, supplementary learning experiences will be provided.

If Butler County finalizes vocational training of its citizens, we would appreciate the Board's approval of giving us the option to develop and implement the same arrangement with them.

ADVANCED PLACEMENT--PN

Philosophy, BCCC Nursing Faculty

The nursing faculty at Butler County Community College believes each student should be considered as an individual. As an individual, he/she should receive credit for past experience or work. Credit in this instance means placement of the student within our nursing curriculum at the place deemed appropriate by the nursing faculty.

This place is to be determined by comparisons of objectives met by the student and the location of these objectives within the nursing curriculum.

This placement will then be validated with teacher-made examinations in theory and evaluation in the clinical area.

Basic Requirements

Basic requirements for admission into the Nursing Program are a high school graduation or G.E.D. and at least 16 years of age.

Before final acceptance into the program, the applicant takes the CGP examination. The results of this test are used to evaluate and counsel the student.

College policy is followed regarding discrimination.

Entry of Students

First Semester--exempting Nursing I theory--continue experience in the clinical area.

Students: Selected students with the recommendation of the Coordinator of the health assistant programs. These students will have met the same objectives in their program that we cover in theory in Nursing I.

Time: This student would spend three semesters on campus and earn 43 credits.

Second Semester--Students: A. Selected students with a background of 4-6 months in another nursing program. These students will have met the objectives of Nursing I. B. Corpsmen or Corpswomen with service connected training. These students will have met the same objectives we cover in Nursing I.

Time: This student would spend two semesters on campus and earn 26 credits.

Summer Session--practical nurse track--Students: Selected students with probably at least an 8-9 month experience in another nurse education program. These students would have met the objectives of our Nursing I and II.

Time: This student would spend one semester on campus and earn 10 credits.

ADVANCED PLACEMENT--RN

Philosophy, BCCC Nursing Faculty

The nursing faculty at Butler County Community College believes each student should be considered as an individual. As an individual, he/she should receive credit for past experience or work. Credit in this instance means placement of the student within our nursing curriculum at the place deemed appropriate by the nursing faculty.

This place is to be determined by comparisons of objectives met by the student and the location of these objectives within the nursing curriculum.

This placement will then be validated with teacher-made examinations in theory and evaluation in the clinical area.

Basic Requirements

Basic requirements for admission into the Nursing Program are a high school graduation or G.E.D. and at least 16 years of age.

Before final acceptance into the program, the applicant takes the CGP examination. The results of this test are used to evaluate and counsel the student.

College policy is followed regarding discrimination.

Entry of Students

Summer Session--associate degree track--Students: Selected students with probably at least 9-12 months in another nurse education program. These students would have met the objectives of our Nursing I, II, and III.

Time: This student would spend three semesters on campus and earn 41 credits.

Third Semester--Students: Selected students with probably at least 12-18 months in another nurse education program. These students would have met the objectives of Nursing I, II, III, and IV.

Time: This student would spend two semesters on campus and earn 32 credits.

APPENDIX B

MODULARIZATION WORKSHOP, MARCH 26, 1976

conducted by

FAY BOWER

FAY BOWER, professor of nursing at San Jose State University, brings to the workshop experience and expertise in the area of curriculum development, modularization and innovative teaching strategies. As director of a curriculum project, she was instrumental in the development of modularized approaches to teaching nursing. Fay has authored books and articles, is involved in research and is working toward a doctoral degree in Community Health Nursing.

Workshop - March 26, 1976

A. <u>What is a Module?</u>

Learning package - self-paced
Composed of related ideas - allows student to self evaluate - portable
PORTABLE IS THE MOST IMPORTANT DIFFERENCE
(Self-paced, Portable)

Modules - learning is made explicit

1. Written objectives
2. Pretest
3. Posttest

Problems:

1. Is the learner ready to accept the responsibilities?

2. Who are the learners? Where have they been?

3. Motivation - We must remember the class room offers interaction - this is very important.

B. <u>Contingencies of Modules</u>:

1. Expectations - <u>very clear objectives</u> in behavioral terms.
   In psychomotor skills this is easy
   Affected domain is more difficult but not impossible
   Try to keep the learning experience within a 50 minute period. People get fatigued after 50 minutes.
   Evaluate the time - use enough people for validation.
   One or two major concepts should be covered at one time.
   Modules are goind conceptual.
   Fluid & Electrolytes have at least 6 concepts
   Grieving has at least 8 concepts

2. Prescription - What learning activities will help the student meet the objectives? <u>Example</u>: Develop communication skills - More than reading a book you need interactions with live people. Depending upon the verb that describes the behavior the prescription lies. Reading is alright because we need some cognitive skills

3. Achievement - Important that we design a prescription that is achievable; that is, in the time span and for the particular learner. Most people do not pace well, Wilson. "Doomsday Contingency" How can I build a system so I don't fix it for students to fail? There has to be some sort of scheduling

and monitoring so that it is achievable. It is important that we build a theory component and application component (we are an occupation and profession) We can address ourselves to the slow achievers and the high achievers. Some have what is termed basic modules and then they have elective modules(if you feel like it, here are some other things you can do)

4. Motivation - Modules that bore or overwhelm the students will kill your system. You need to build into the system periodic progress checks to give feedback to the student. The module talks to the student - where they are going, where they've been, where they are right and where they are wrong. This can be done on tape - by contact - or they come to a seminar. Modules do not replace teachers. The teachers are more important than before. The module gives the information - you now become a facilitator of a learning experience and a skill. The teacher is now the "clarifier you become the "validator."

Some students love modules, some hate them! They don't like the independence. Give yourself one year to prepare students. Begin to feed in some amount of self-pacing. At San Jose they began all the modules in one day without evaluation. It has taken 5 years to straighten out the mess.

Faculties needs must be met. Look at both faculty and students. Instruments - MMPI First semester students hate the modules. Cognitive Style Mapping - Hill is a good method. This gives a printout of how you learn - how you organize your world. Modules should be developed to fit all learning styles. We tend to teach the way we learn:

How We Deal With Facts
- Big basket - reach in
- Hanging on something - organize in similar packages
- Matching opposites
- File cabinet - catagorized or in order

Cost $1.00 per person for Cognitive Mapping. Crystal Lange is working in this area of cognitive mapping.

We are beginning to individualize the modules. A module needs to be given to 4 groups in order to validate the module.

Organization:

a. Modules are scheduled

b. Seminars are scheduled (bring concept alive in the practice of nursing)

c. Post test must be passed before admittance to seminar. Three times not meeting a seminar and they are called in.

d. After 5 modules - test. Situational test 4 tests a semester. They are graded on the exams. Students want grades so they can go on to graduate school.

5. Evaluation - Progress checks and post tests.
Most difficult to keep everything consistent
Validate modules in pilot study
Different post test than pre test covering the same concept.
Pre-tests are for: (a) Pre-requisite information
(b) Acceleration
Resources are given on the front of the modules

6. Generalization - Conceptual rather than disease oriented. This stops students from memorizing material rather than grasping a concept.

C. Components of Module -
1. Objectives (expectations of module)
2. Directions (tell learner what to do)
3. Pre test (test on content or prerequisite)
4. Learning activities (a) Programmed instruction
(b) Interpersonal action
(c) Visual activities
(d) Reading assignments
5. Progress checks after each learning activity
6. Post test - test the complete contents
(a) Written
(b) Verbal
(c) Performance

D. Ways to use modules in developing a concept

1. Clustered
2. Chained
3. Pyramids - sequential or random
4. Individual

E. Cost - San Jose State University Modularized system is self-supporting

1. Cost effective @ end of 6 years
2. Pay people to review modules
3. Pay persons to man lab
4. Reduced no. of faculty it takes to handle the no. of students
5. Media - very careful selection now
6. Use less and less film
Students don't want tied to lab
Slides, photographs are being utilized
Slides and tapes check out (6 copies of each available)
7. Cost per module - $1.00
8. None of this expense comes out of the nursing budget

F. Summary - The question was asked about objective evidence that modules are better than conventional teaching methods. There are many studies going on but many of these are misleading. It is most important what is happening in your own particular institution. Are the students ready for this? Is your faculty ready?

As alternative learning method we were exposed to "Explicit Memory Technique " during the workshop. Using large sheets of paper, a recorder writes the main points of the class discussion and posts these around the classroom. If a student misses class he or she can go in and read the papers in order to keep current with the class. Also, this keeps everyone thinking along the same lines during the discussion period.

In the afternoon, everyone had a chance to practice what they had learned by developing a module.

APPENDIX C

Introduction to Trends in Nursing

General Information

This course consists of 9 modules to be completed within the fifteen week semester, meaning approximately one module per week must be completed.

Grades will be based upon the midterm and final examinations.

Each student is required to attend one seminar per week using a pretest or posttest as criteria for admission.

Each module consists of a pretest, objectives and learning alternatives, and a posttest.

The bibliography for the course should be obtained with the first module.

Directions:

1. Take pretest. If you achieve 100% on the test you may proceed to the pretest of the next module. If you preempt the module, you may use your time to your advantage. However, you must attend the seminar for that week, using your pretest for admission.

2. If you do not achieve 100% on the pretest, proceed with the module. You may select any or all of the learning alternatives to assist you in meeting the objectives. Upon completion of the objectives you will take the posttest, which will not be graded. Satisfactory achievement of the posttest will admit you to the seminar.

Module 2

I DID IT MY WAY

Pretest

A. Essay

1. What types of programs can lead to licensure as an RN?

2. Differentiate an accredited nursing program from an approved nursing program.

3. What is the purpose of Lysaught's "An Abstract for Action"

4. What type of career pattern emphasizes nursing practice for health maintenance and prevention of illness?

5. Give two examples of nursing programs which illustrate career mobility.

6. What are three characteristics of graduate education in nursing?

B. True or False (T for True, F for False)

1. _____ A level of nursing practice involving intermediate functions requiring skills and some judgments is a technical level.

2. _____ The New York Resolution of 1985 advocates the maintenance of the current system of licensure.

3. _____ An RN pursuing a BSN is an example of continuing education in nursing.

4. _____ A professional nurse is educated at a level of nursing practice which involves intermediate functions requiring skills and a certain amount of judgment.

5. _____ CEU's are mandatory for nursing licensure in most states.

6. _____ Associate Degree programs in nursing are decreasing in numbers.

Module 2: I DID IT MY WAY

General Objective

1. Upon completion of this module, the student will be able to explain the types of nursing programs, as well as describe the trend in nursing education and what studies have influenced this trend.

Vocabulary

ADN	Open curriculum	Abstract for Action
BSN	Distributive	CEU
Diploma nurse	Episodic	Extended role
PN/VN	Technical	Accredited program
ANA Position Paper	Professional	Approved program

Specific Objectives

1. Identify the types of nursing programs leading to licensure and compare the similarities and differences of each type of program.

2. Differentiate an accredited nursing program from an approved nursing program.

3. List three reports and/or studies which have affected nursing education from the late 1950's to the present.

4. Explain the career patterns identified by the National Commission for the Study of Nursing and Nursing Education in 1970, and give an example of each.

5. Describe the trends in nursing education as to what programs are increasing in numbers, and explain the types of open curriculum.

6. State the definition of a professional and a technical nurse.

7. Discuss the New York resolution and other similar resolutions being promoted by SNA's and what impact this will have on nursing.

8. Give a rationale for continuing education for nurses and state three examples of how a nurse may be involved in continuing education.

9. Explain the purpose(s) of graduate education in nursing.

Suggestions for Learning Activities

1. Lecture by nurse educator.

2. Interview faculty and/or students of various types of nursing schools.

3. Debate: Should continuing education be mandatory for re-licensure.

4. Make a graph showing number of students enrolled in ADN, Diploma, BSN programs and contrast with 10 years ago.

5. Panel discussion concerning New York's 1985 resolution.

In Depth Studies

1. Do a survey of nurses in a specific institution to determine what percentage of LPN, ADN, BSN, and Diploma graduates are employed there.

2. Obtain the criteria for NLN accreditation and the Rules and Regulations of the State Board of Nurse Examiners.

Resources

Books:

1. Abdellah, Faye, et al. New Directions in Patient Centered Nursing, New York: The Macmillan Co., 1973.

2. Griffin, Gerald and Joanne Griffin. History and Trends of Professional Nursing, 7th Edition. St. Louis: The C.V. Mosby Co., 1973.

3. Kelly, Lucie Young. Dimensions of Professional Nursing, 3rd Edition. New York: The Macmillan Publishing Co., Inc., 1975.

4. Spalding, Eugenia K. and Lucille E. Notter. Professional Nursing, 8th Edition. Philadelphia: J.B. Lippincott Co., 1970.

5. Story, D. Career Mobility. St. Louis: The C.V. Mosby Co., 1974.

Articles:

Reports and Pamphlets

1. "An Abstract for Action" Jerome P. Lysaught

2. "Distributive Nursing Practice"

3. "Episodic Nursing Practice"

4. American Journal of Nursing, "ANA Convention '74," Vol. 74:1259-1275 (July 1974)

5. Nursing Outlook, "Educational Preparation for Nursing - 1974," Vol. 23 No. 9: 578-582 (Sept. 1975)

6. "Extending the Scope of Nursing Practice - 1972," Dept. of Health, Education and Welfare, Washington D.C.

Periodicals:

1. Lenburg, Carrie B. and Walter L. Johnson. "Career Mobility Through Nursing Education," Nursing Outlook, Vol. 22 No. 4:265-269 (April 1974)

2. McGriff, Erline P. "Continuing Education in Nursing," Nursing Clinics of North America, Vol. 8 No. 2:325-335 (June 1973)

3. Shetland, Margaret L. "This I Believe About Career Ladders," Nursing Outlook, Vol. 18 No. 9:32-35 (Sept. 1970)

4. Thurston, Hester I. "Education for Episodic and Distributive Care," Nursing Outlook, Vol. 20 No. 8:519-523 (Aug. 1972)

5. Wood, Lucille. "Proposal: A Career Plan for Nursing," American Journal of Nursing , Vol. 73 No. 5:832-835 (May 1973)

Audiovisuals:

1. "Dilemmas of Nursing Education. 1970. American Journal of Nursing #M07, B&W, 30 minutes.

Module 2

I DID IT MY WAY

Post test

A. True or False (T for True, F for False)

1. _____ An approved nursing program is one which has voluntarily sought evaluation by the NLN in order to meet the criteria of nationally determined standards of excellence.

2. _____ Episodic is a career pattern which emphasizes nursing practice that is curative and restorative and most often provided in the hospital setting.

3. _____ An "Abstract for Action" was a paper published by the ANA to guarantee economic security to nurses.

4. _____ Approval of nursing programs is performed by a State Board of Nurse Examiners and is a necessary procedure for the programs to legally operate.

5. _____ CEU's are necessary for licensure in Pennsylvania.

6. _____ The following types of nursing programs lead to the same licensure - ADN, BSN, LPN, diploma.

7. _____ A career pattern which emphasizes nursing practice for health maintenance and disease prevention, and is based in a community setting is called episodic.

B. Essay

1. Which types of schools of nursing have increased in numbers in the past 5 years?

2. Define professional nurse and technical nurse according to Kelly.

3. Explain the general implications of the 1985 New York Resolution.

4. List two reports within the past 25 years which you think affected nursing education the most and briefly tell why (25 words or less).

5. Briefly describe the type of nursing curriculum available at BC^3 and explain the purpose of such a curriculum.

6. List three ways in which continuing education for nurses can be obtained.

Module 1

PEOPLE AND EVENTS

A. Purpose: Upon completion of this module, the student should appreciate the scope of forces that have made nursing what it is today and that have potentialities for influencing its future development.

B. Vocabulary

1. Intuitive nursing - The first period in the development of nursing as a profession where there was no special training or education involved.

2. Apprentice nursing - The second period in the development of nursing as a profession where there was an actual on-the-job training for those wishing to practice nursing.

3. Educated nursing - The third period in the development of nursing as a profession whereby the schools for nursing were established.

4. Contemporary nursing - A term applied to nursing beginning at the end of World War II until the present day.

5. Code of ethics - An established standard of conduct used for the guidance of professional activities.

6. Professional criteria - A set of standards by which to evaluate a chosen occupation as to its professionalism.

7. ANA Certification - A voluntary program for recognition of excellence in a specific area of clinical practice.

C.

OBJECTIVES	LEARNING ALTERNATIVES
1. Describe a period in nursing history when any one of the following characteristics typified nursing: apprenticeship preparation, tradition bound practice, dependent relationship with physician, mothering role with clients. Leg XII-C Obj. 1	1. Lecture 2. History & Trends of Professional Nursing, Griffin & Griffin, Chap.1- 3. "Nursing History, One Means to Personalized Care," AJN, Jan. 1968. 4. Steppingstones to Professional Nursing, Cafferty & Sugarman, Chap. 1-4.
2. Given a list of nursing leaders, select six leaders and briefly describe their contributions to nursing and the approximate time period in which they functioned.	1. Principles and Practices of Nursing Care, Storey, Chap. 1. 2. Prepare a report (200 words or less) on a nursing leader and describe their contribution to nursing. 3. "Florence Nightingale," RN, May 1970. 4. "Lillian Wald," NO, Oct. 1971.

3. Select the war which you feel had the greatest influence on nursing; describe the social conditions that the cessation of hostilities produced and state why nursing education progressed or regressed as a result.	1. Griffin & Griffin, Chap. 25-27. 2. Dimensions of Professional Nursing, Kelly, Chap. 5. 3. Cafferty & Sugarman, Chap. 1-4.
4. Discuss five social and economic factors which will have an impact on nursing during the next decade.	1. Lecture 2. Kelly, Chap. 7-11. 3. The Emergence of Modern Nursing Bullough & Bullough, Chap. 8.
5. Describe the purposes of a code of ethics, professional standards and criteria.	1. "Establishing Standards for Nursing Practice," AJN, July, 1969. 2. Kelly, Chap 12 & 13.
6. Given a problem situation in a hospital and a list of actions that the nurse might take, select those that demonstrate behavior that shows moral responsibility to the client and loyalty to the employer and state why. Leg XII-A Obj. 18	1. Legs Audiotape, No. 10 Side 1.
7. Compare the role of the nurse within a unit management system with the role of the nurse without such a system and list three examples of tasks that the nurse would relinquish within such a system. Leg XIV-C Obj. 21	1. "The ANA Certification Program," Nursing Clinics of North America Sept. 1974.

D. Enrichments:

1. Locate one name of a distinguished nurse in this area and explain the contributions made to the field of nursing.

2. Obtain a copy of Florence Nightingale's "Notes on Nursing" and read any chapter in the book. Write a brief paragraph which describes the changes in nursing care that was given then and the nursing care given today. Note any area that remains the same.

3. Read the history of a hospital in your area. How old is the hospital? Did the hospital start through a religious organization? Outline some of the facts about the hospital which you find interesting and report to your class.

E. Evaluation

Test on objectives 1, 2, 4, 6 & 7.

Module 1

1. Matching

1. _____ Clara Barton	a. America's first trained nurse
2. _____ Linda Richards	b. First professor of nursing in the world
3. _____ Lillian Wald	c. Founder of Henry Street Settlement
4. _____ Mildred Montag	d. Organized and implemented associate degree nursing
5. _____ Jessie Scott	e. Assistant Surgeon General
6. _____ Mary Adelaide Nutting	f. Chief nurse officer United States Public Health Service
7. _____ Faye Abdellah	g. Founded American Red Cross
8. _____ Dorothy Novella	h. President of NLN
9. _____ Florence Nightingale	i. Perfected plan to have professional nurses enrolled & ready for military service in World War I
10. _____ Mary Breckenridge	j. Active in early development of nursing organizations in this country and of ICN
11. _____ Jane Delano	k. First professional Negro nurse in U.S.
12. _____ Lavinia Dock	l. Army nurse who died after volunteering for yellow fever experiment.
13. _____ Mary Mahoney	m. Organized nursing care for soldiers in Crimean War.
14. _____ Clara Maass	n. Founded Frontier Nursing Service of Kentucky

2. Define each of the following:

a. Intuitive nursing

b. Apprentice nursing

c. Educated nursing

d. Contemporary nursing

3. List and discuss briefly 3 social and/or economic factors which will have an impact on nursing during the next decade.

4. What actions would you take for the following situation:

You notice the blood pressures being recorded by your LPN are always similar to the previous readings taken on each patient. You recheck two of these patients and discover that your readings and hers differ by 20 points on one patient and 15 on another.

5. Select which of the following functions are being carried out by staff nurses in your hospital and which you feel could be carried out by a nonnurse in the role of a unit manager.

FUNCTIONS	WHO IS PRESENTLY DOING IT	WHO SHOULD DO IT
1. Contact various departments to make the necessary arrangements for scheduling of tests.		
2. Check all supplies in Clean Utility Room (initiate necessary requisitions if required) and the medication room.		
3. Make rounds of patients rooms. Indicate in checklist any areas which require maintenance, housekeeping, etc. Initiate paper work required. Follow up on requisitions made previously. a. Check for properly functioning equipment in room and bathroom b. Environment - comfort c. Window closed d. Report to maintenance any repairs required e. Report to housekeeping supervisor any discrepancies in housekeeping		
4. Visit all new admissions as soon as possible and use the procedure below. a. Explain the intercom system, pillow speaker for radio and TV, closet for clothes		

FUNCTIONS	WHO IS PRESENTLY DOING IT	WHO SHOULD DO IT
b. Security-patient valuables policy. Advise him that there should be no valuables kept with him. Valuables can be locked in safe or Business Office.		
c. Inform patient of barber/beautician facilities; explain the requirement of doctor's permission.		
d. Inform patient of other facilities such as Volunteer Library, Gift Shop, etc.		
e. Answer any questions the patient may have or refer his questions to nursing.		
5. Direct visitors. Promote good relationships with patient's family, visitors, and staff.		
6. Check the emergency cart with nurse to ensure that everything is in order.		
7. Maintain the necessary relationship with the Dietary Department on all matters pertaining to food service on the unit.		

Module 2

I DID IT MY WAY

A. Purpose: Upon completion of this module, the student will be able to explain the types of nursing programs, as well as describe the trend in nursing education and what studies have influenced this trend.

B. Vocabulary:

1. ADN - A 2 year community college program, upon the completion of which the individual is eligible for licensure as a registered nurse and possesses an Associate Degree in Nursing.

2. BSN - A 4-5 year collegiate or university program, upon the completion of which the individual is prepared for licensure as a registered nurse and possesses a Bachelor of Science in Nursing.

3. Diploma nurse - A 24 to 30 month program in a hospital setting, upon the completion of which the individual is eligible for licensure as a registered nurse and possesses a diploma.

4. PN/VN - A program approximately 1 year in length in a variety of settings, upon the completion of which the individual is eligible for licensure as a practical or vocational nurse.

5. ANA Position Paper - Published in 1965, and presented criteria for education of the professional and technical nurse, and stated that nursing education should take place within the general education system.

6. Open curriculum - An educational approach designed to accommodate the learning needs and career goals by providing flexible opportunities of entry into and exit from the educational program.

7. Distributive - A career pattern which emphasizes nursing practice for health maintenance and disease prevention based in a community setting.

8. Episodic - A career pattern which emphasizes nursing practice that is curative and restorative, and most often provided in the hospital setting.

9. Technical - A level of nursing practice involving intermediate functions requiring skills and some judgments.

10. Professional - A level of nursing practice involving complex functions requiring expert skills and judgments.

11. CEU - Contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction and qualified instruction.

12. Abstract for Action - A study conducted by National Commission for the Study of Nursing and Nursing Education which focused on supply and demand for nurses, nursing roles and functions, nursing education and nursing careers.

13. Extended role - The term applied to the broader scope of functions and responsibilities in nursing in order to meet the emerging health care needs of our society.

14. Accredited program - Nursing programs which have voluntarily sought evaluation by the NLN in order to meet the criteria of nationally determined standards of excellence.

15. Approved program - Nursing programs which have met the criteria established by the State Board of Nurse Examiners, in order to operate legally.

C.

OBJECTIVES	LEARNING ALTERNATIVES
1. Identify the types of nursing programs leading to licensure and compare the similarities and differences of each type of program.	1. Lecture. 2. Dimensions of Professional Nursing, Kelly, Chap. 11. 3. Professional Nursing, Spalding & Notter, Chap. 10. 4. Group discussion and presentation.
2. Differentiate an accredited nursing program from an approved nursing program.	1. Group discussion and presentation. 2. Research the standing of your school. 3. Obtain the criteria for NLN accreditation or State Board approval of ADN programs and list the differences.
3. List three reports and/or studies which have affected nursing education from the late 1950's to the present.	1. Group reports - one study per group. 2. Dimensions of Professional Nursing, Kelly, Chap. 6. 3. "An Abstract for Action," Lysaught.
4. Explain the career patterns identified by the National Commission for the Study of Nursing and Nursing Education in 1970, and give an example of each.	1. Lecture. 2. An "Abstract for Action." 3. Kelly, Chap. 6. 4. Pamphlets "Abstract for Action; Episodic Nursing," "Abstract for Action; Distributive Nursing." 5. Dept. of Health, Education & Welfare, Washington D.C. "Extending the Scope of Nursing Practice 1972." 6. Spalding & Notter, Chap. 10.

	7. "Education for Episodic & Distributive Care," NO, Aug.1972. 8. "Proposal: A Career Plan for Nursing," AJN, May 1973. 9. "This I Believe About Career Ladders," NO, Sept. 1970. 10. "Career Mobility Through Nursing Education," NO, April 1974.
5. Describe the trends in nursing education as to what programs are increasing in numbers, and explain the types of open curriculum.	1. Kelly, Chap. 11. 2. Lecture. 3. Career Mobility, Storey, Chap. 1. 4. Griffin & Griffin, Chap. 17, 20-24. 5. Make a graph showing number of students enrolled in ADN, Diploma, BSN in 1975 & contrast with 10 years ago. 6. "Educational Preparation for Nursing - 1974," NO, Sept. 1975.
6. State the definition of a professional and a technical nurse.	1. Group presentation. 2. New Directions in Patient-Centered Nursing, Abdellah, Beland, Martin & Matheney, Chap. 8 & 9. 3. Kelly, Chap. 25.
7. Discuss the New York resolution and other similar resolutions being promoted by SNA's and what impact this will have on nursing.	1. Lecture. 2. "ANA Convention 1974," AJN, July 1974. 3. Copies of resolution.
8. Give a rationale for continuing education for nurses and state three examples of how a nurse may be involved in continuing education.	1. "Mandatory Continuing Education," AJN, Mar. 1973. 2. Debate: Should continuing education be mandatory for re-licensure? 3. "Continuing Education in Nursing," Nursing Clinics of North America, June 1973.
9. Explain the purpose(s) of graduate education in nursing.	1. Lecture. 2. Abdellah, Beland, Martin & Metheney. Chap. 10.

D. Enrichment:
1. Do a survey of nurses in a specific institution to determine the percentage of LPN, ADN, BSN, and Diploma graduates who are employed there.

E. Evaluation:

Test on objectives 1-9 -	80% of grade
Midterm	
Final	
Reports	20% of grade

Module 2

True or False

1. _____ An approved nursing program is one which has voluntarily sought evaluation by the NLN in order to meet the criteria of nationally determined standards of excellence.

2. _____ Episodic is a career pattern which emphasizes nursing practice that is curative and restorative and most often provided in the hospital setting.

3. _____ An "Abstract for Action" was a paper published by the ANA to guarantee economic security to nurses.

4. _____ Approval of nursing programs is performed by a state board of nurse examiners and is a necessary procedure for the programs to legally operate.

5. _____ CEU's are necessary for licensure in Pennsylvania.

6. _____ The following types of nursing programs lead to the same licensure - ADN, BSN, LPN, diploma.

7. _____ A career pattern which emphasizes nursing practice for health maintenance and disease prevention, and is based in a community setting is called episodic.

1. Which types of schools of nursing have increased in numbers in the past 5 years?

2. Define professional nurse and technical nurse according to Kelly.

3. Explain the general implications of the 1985 New York Resolution.

4. List two reports within the past 25 years which you think affected nursing education the most and briefly tell why (25 words or less).

5. Briefly describe the type of nursing curriculum available at BC^3 and explain the purpose of such a curriculum.

6. List three ways in which continuing education for nurses can be obtained.

Module 3

TO BE, OR NOT TO BE

A. Purpose: The purpose of this module is to assist the student to gain knowledge and understanding of the professional nursing organization, so that he may decide where his committment is. He should be able to differentiate between the various organizations and to name the nursing publications available today.

B. Vocabulary:

1. ANA - The American Nurses' Association is a professional organization, with membership open only to the registered nurse.

2. ANF - The American Nurses' Foundation is an organization created by the ANA to meet the need for an independent, permanent, non-profit organization devoted to nursing research.

3. NLN - The National League for Nursing is an organization whose membership includes nurses, other members of the health care team and interested lay persons and agencies concerned with nursing education and nursing service.

4. ICN - The International Council of Nurses is a federation of national nursing organizations working together to raise the standards of education and professional ethics, public usefulness and civic spirit of their members.

5. NSNA - The National Student Nurses' Assoication is an organization for nursing students in the United States whose purpose is to aid in the development of the individual student.

6. NAPNES - The National Association for Practical Nurses' Education and Service is the oldest organization for practical nurses in the U.S. whose purpose is to improve and extend the education of the practical nurse to meet the critical need for more nursing personnel.

7. NFLPN - The National Federation of Licensed Practical Nurses is a federation of state assoications made up entirely of practical or vocational nurses.

8. AACN - The American Association of Colleges of Nursing is an organization of deans and directors of NLN accredited baccalaureate and higher degree programs for the purpose of providing knowledgeable leadership in nursing.

9. AJN - The American Journal of Nursing is a monthly publication of the American Journal of Nursing Company and is the official ANA publication.

10. NO - Nursing Outlook is also published monthly by the American Journal of Nursing Company and is the official journal of the National League for Nursing.

11. PHS - Public Health Service is a federal agency charged with promoting and assuring the highest level of health attainable for every individual and family in the U.S. (may be referred to as USPHS).

12. WHO - The World Health Organization is a specialized agency set up by the United Nations and is charged with assuring the highest level of health attainable for every individual in the participating countries.

D. OBJECTIVES	LEARNING ALTERNATIVES
1. Compare the ANA and NLN organizations as to purposes, membership, programs and official publications.	1. Lecture 2. "Illustrious Past, Challenging Future," AJN, Sept. 1971. 3. Dimensions of Professional Nursing, Kelly, Chap. 25-26. 4. Steppingstones for Professional Nurses, Cafferty/Sugarman, Chap. 20, 21, 24. 5. Write a brief 2 page history of ANA or NLN, including first president & current president. 6. "This I Believe - About the National League for Nursing," NO, Feb. 1971.
2. Write a rationale for having two such large organizations in nursing.	1. Debate: Are two nursing organizations really necessary? 2. "The Functions of the Professional Association," AJN, June 1958.
3. State or write the purposes and/or functions of two other nursing organizations.	1. Group discussions and presentation. 2. Professional Nursing, Spalding & Notter, Chap. 22. 3. Kelly, Chap. 27. 4. Cafferty & Sugarman, Chap. 25.
4. List two nursing organizations formed since 1969 and explain their principal functions.	1. Kelly, Chap. 27. 2. Group discussion and presentation.
5. List five nursing publications, excluding those in objective 1 and briefly describe their purpose.	1. Assigned reports and discussion. 2. Cafferty & Sugarman, Chap. 21. 3. History and Trends in Professional Nursing, Griffin/Griffin, Chap. 34. 4. Kelly, Chap. 30.
6. List the major index publication of the AJN Co. and explain its value.	1. Group discussion and presentation. 2. Kelly, Chap. 30. 3. "The International Nursing Index", AJN, Apr. 1966. 4. Griffin/Griffin, Chap. 34.

D. Enrichments:

1. Contact the PNA office in Pittsburgh and find out the number of PNA members in the district.

2. Attend a local unit meeting.

Module 3

True or False

1. _____ The ANA is open to lay people interested in nursing as well as to professional nurses.

2. _____ The AJN is the official ANA publication.

3. _____ The student in an AD nursing program is being prepared as a technical nurse.

4. _____ One function of the NLN is to establish a national salary goal for the beginning practitioner in nursing every 2 years.

5. _____ Nurses may designate their state organization to act as bargaining agent in employee-employer negotiations.

6. _____ The ANA Economic Security Unit makes professional liability insurance available to all nurses.

7. _____ The oldest organization for practical nurses in the U.S. is NSNA.

8. _____ Nursing Outlook is published by the AJN co. and is the official magazine of the NLN.

9. _____ The ICN is a federation of national nursing organizations working together.

1. The NLN provides:

   a. Evaluation Services (achievement tests to schools of nursing).
   b. Licensing examinations for use by state boards of nursing.
   c. Membership for both professional nurses and lay persons.
   d. Is officially connected with the World Health Organization.
   e. Accreditation services.

   1. a, b, d, e
   2. b, c, d, e
   3. a, b, c, e
   4. a, c, d, e

2. The official publication of NAPNES is _____

3. An agency set up by the United Nations to assure optimum health for member countries is _____

4. The NLN fosters the development and improvement of _____ and _____.

5. What are the 5 divisions of nursing practice in ANA?

   1. community health
   2. geriatrics
   3. maternal and child care
   4. medical-surgical
   5. psychiatric and mental health

6. (a) What district association do you have the privilege of joining after you become an R.N.?

   (b) Who is the present president?

   (c) What are the dues?

   (d) How often are meetings held?

7. (a) Where are the headquarters for ANA?

   (b) When and where will the next convention be held?

   (c) Who was the first president and who is the present president of ANA?

Module 4

THE THREE FACES OF EVE

A. Purpose: Upon completion of this module, the student should be able to identify how the nurse's responsibility for health care is legally regulated as well as identify the general changes in nursing practice.

B. Vocabulary

1. Nurse Practice Act - Licensing laws enacted by individual states which establish the definition of the practice of nursing as well as the requirements of those persons engaged in the profession.

2. Institutional Licensure - The concept by which the institution in which the service is provided will license or give legal sanction for an individual to practice.

3. Permissive Licensure - A type of licensing law which does not forbid unlicensed persons from engaging in activities and assuming the responsibilities of a particular licensed profession or occupation, but does forbid the use of the designation authorized by law.

4. Mandatory Laws - A type of licensing laws forbidding any person from performing the activities of a licensed profession or occupation unless he is legally licensed.

5. Nursing process - A set of actions to determine, plan and implement patient care.

6. Case nursing - A one-to-one nurse-patient relationship.

7. Functional nursing - A traditional nursing method which is task oriented, such as medication nurse or treatment nurse.

8. Team nursing - A group of nursing personnel working together to administer quality care to a group of patients under the direction of a designated leader.

9. Primary nursing - One-to-one nurse-patient relationship. The primary nurse has complete responsibility for patients on a 24 hour basis, from admission to discharge.

10. Nursing history - A clinical tool used to collect data from the patient, friends or family which includes medical and social aspects.

11. Assessment - A process of analyzing and identifying problems.

C.

OBJECTIVES	LEARNING ALTERNATIVES
1. Describe the importance of nurse practice acts to nursing, and list the basic components of such an act.	1. Steppingstones to Professional Nursing, Cafferty and Swearman, Chap. 17.

	2. Professional Nursing, Spalding & Notter, Chap. 27. 3. History & Trends of Professional Nursing, Griffin & Griffin, Chap. 44.
2. Discuss the purposes of institutional licensure.	1. "Institutional Licensure: A Dilemma for Nurses," Nursing Clinics of North America, Sept. 1974. 2. "Resolutions on Institutional Licensure," AJN, 1972.
3. State orally or in writing five functions of your State Board of Nursing. Leg XII-A Obj. 20	1. "State Boards of Nursing: Legal Aspects," Nursing Clinics of North America, Sept. 1974. 2. Group discussion. 3. Obtain rules of the State Board of Nursing.
4. Briefly describe the phases of the nursing process.	1. Lecture. 2. The Process of Planning Nursing Care, Bower, Chap. I. 3. Make a chart showing 4 phases. 4. "Components of Nursing Process," Nursing Clinics of North America Mar. 1971. 5. Fundamentals of Nursing, Fuerst, Wolff & Weitzel, Chap. 5. 6. "Teaching Nursing Process to Beginning Students," NO, July 1968 7. The Nursing Process, Yura & Walsh, 1973. 8. "Some Crucial Terms in Nursing: What Do They Really Mean?" NO, Nov. 1974.
5. Given descriptions of RN's working in a hospital, identify what methods of organization each is using and state how you know this. Leg XII-A Obj. 10	1. Primary Nursing, G. Marram. 2. Review of Team Nursing, L.M. Douglass. 3. Observe the types of nursing care used in area institutions and be prepared to discuss any type in class.
6. Given nursing actions or client situations, describe either orally or in writing, nursing actions which are dependent and independent. Leg VI-B Obj. 19	1. Cafferty & Sugarman, Chap. 17.
7. Demonstrate reading a medical history; interviewing an aged client to determine his life style, pattern of aging, and present needs; and recording this information in a concise written form which could be used by all levels of health personnel in planning the nursing care. Leg XIII-B Obj. 10	1. Fuerst, Wolff & Weitzel, Chap. 8. 2. Create a nursing history form that will help you obtain information about a geriatric patient's lifestyle.

8. Demonstrate or role play obtaining an accurate nursing history from a client in a given time using a given nursing history form.

D. Enrichment

1. Take a nursing history on:
   a. A newly admitted patient
   b. A patient hospitalized for several days

   and compare your impressions with someone else's impressions.
2. Given a simulated client unit and a list of personnel (both full and part-time) write a plan for the nursing care coverage for that unit for one week for all three shifts, giving your rationale for any differences in numbers of staff assigned to each shift and be able to state what changes would be made if any one or more persons were on sick leave or vacation. Leg XII-A Obj. 15

E. Evaluation

1. Obtain at least 2 nursing history forms to evaluate.
2. "Components of the Nursing Process," Nursing Clinics of North America, Mar. 1971.
3. "Nursing History: One Means to Personalize Care," AJN, Jan. 1968.
4. "Interviewing or Social Chit-Chat?" AJN, July 1971.

Module 4

True or False

1. _____ Mandatory law requires that any nurse engaged for hire be licensed by the state in which she is employed.

2. _____ A function of the State Board of Nursing is to investigate all violations of the Nurse Practice Act.

3. _____ The total assessment of a patient must always be done on the day of admission.

4. _____ Nursing assessment and nursing diagnosis are synonymous terms.

5. _____ Nursing process is a guide for nursing care actions.

1. Define:

   a. Functional Nursing

   b. Team Nursing

   c. Primary Nursing

2. Give 5 functions of the State Board of Nursing

   a.

   b.

   c.

   d.

   e.

3. Describe the phases of the nursing process.

4. Select three actions from the following list which are independent actions of the nurse functioning in an acute care center:

   a. Realizing a CVA patient's need for speech evaluation and contacting an agency for consultation.

   b. Giving an IV injection of heparin.

   c. Applying Bucks extension to a patient with a possible fractured femur.

   d. Reinsertion of a foley catheter.

   e. Teaching the newly diagnosed diabetic patient about skin care, diet, and insulin administration.

   f. Start an IV infusion on a severly dehydrated person who refuses fluids.

5. List the essential components of a nurse practice act.

6. State three possible reasons that a nurse in Pennsylvania could have her license revoked.

Evaluation :

Written test on Obj. 1, 3, 4, 5 and vocabulary.

Satisfactory demonstration of Obj. 8 in clinical area.

Lab demonstration of Obj. 9.

Module 5

WHERE THE ACTION IS

A. Purpose: Upon completion of this module, the student will be able to describe the trends in the delivery of health care, how the delivery may be accomplished and how the care is evaluated.

B. Vocabulary:

1. RMP - A Regional Medical Program is designed to improve the nation's health manpower and facilities and is federally funded.

2. CHPC - A Comprehensive Health Planning Council, is a state planning board for community health care and education for health manpower.

3. HMO - A Health Maintenance Organization is designed to assure responsibility for total health care of a defined population on the basis of fixed annual contracts.

4. PSRO - The Professional Standards Reveiw Organization was established by the Social Security Amendments of 1972. The law calls for the establishment of PSRO's throughout the country to monitor and control the medical care provided to beneficiaries of Medicare, Medicaid and Maternal and Child Health Programs.

5. POMR - Problem-Oriented Medical Records is a systematic method of recording, which identifies the patient's problems, the plan of treatment, and the progress of the plan.

6. Utilization review - This is an evaluation of the utilization of hospital facilities and services.

7. Audit - The process of reviewing a chart to evaluate the health care of the individual based on specific criteria.

8. Infection control nurse - A nurse who supervises the environment with regard to prevention and control of infections.

9. ECF - An Extended Care Facility - is a nursing home type institution where skilled services are available for persons who do not require acute care.

10. Medicare - Program developed to pay the major share of healthcare costs for individuals over 65.

11. Medicaid - A program designed to cover medical care costs on an optional basis contingent on the payment of a small monthly premium for individuals over 65.

12. Blue Cross/Blue Shield - Nonprofit prepayment insurance plans to cover hospital and physician's costs.

C. OBJECTIVES	LEARNING ALTERNATIVES
1. Identify which Health Service Region your community is in; list three services it offers to your community and state how these services are financed. Leg XII-C Obj. 8	1. Individual reports and discussions. 2. Interview someone involved in the promotion of health care in your community. (Health and Welfare Council) 3. Draw a map of Pennsylvania, designating the various Health Service Regions. 4. "Health Service Areas Designated," Penna. Health, Summer 1975.
2. Describe one current national health insurance bill being proposed for legislation.	1. Lecture. 2. Obtain, "Message from the President of the United States on Health," Pres. Richard M. Nixon, Congressional Record-Senate, Wash. D.C., Superintendent of Documents, U.S. Government Printing Office, Mar. 2, 1972. 3. Obtain "Towards a Comprehensive Health Policy for the 1970's, May 1971, Superintendent of Documents. 4. Obtain "Emergency Medical Services Act," Congressional Record - House, Jan. 31, 1972, Superintendent of Documents. 5. New Directions in Patient-Centered Nursing, Abdellah, Beland, Martin, Matheney, Chap. 17. 6. "The Health Department and the Comprehensive Health Care Act," Penna. Health, Winter 1973.
3. Discuss the advantages and disadvantages of a Health Maintenance Organization.	1. Group discussions and reports. 2. "HMO's and Health Education," AJPH, May 1975. 3. "Health Maintenance Organization Delivery System," AJPH, Nov. 1975.
4. List three changes in health care, and state why they are partial solutions to the rising costs of health care. Leg XII-C Obj. 7	1. "Free Clinics Change the Scene" AJN, Feb. 1974.
5. Describe what your state and local nursing associations are doing regarding the poverty or health issues in your state and community Leg XIV-A Obj. 2	1. Interview nurses (PNA) at hospital. 2. Obtain "The ANA in Washington," Julia Thompson, Pub. 1972, Kansas City, MO.

6. List the actions that are currently being taken in one of your community hospitals to evaluate, verify, and improve the client care and list three additional actions that could be taken. Leg XII-C Obj. 9

1. Lecture by Nurse Epidemiologist BCMH.
2. "Nurse Participation in Medical Peer Review," NO, Jan. 1974.
3. "Accreditation - What About the Public," NO, Oct. 1971.
4. Rounds with Nurse Epidemiologist/ Utilization Coordinator.
5. Attend meetings Infection Committee

7. Given a client situation, list three actions a nurse could take to help keep the cost of hospitalization down for that particular client and state why each would have that effect. Leg XII-C Obj. 6

1. Invite someone from hospital credit office to find out ways of handling costs.
2. Interview Utilization Coordinator about her role and function at BCMH.
3. "Nurses are Key in HIP Experiment to Cut Health Care Costs," AJN, Feb. 1972.

8. List the actions that are currently being taken in one of your community hospitals to evaluate, verify, and improve the client care and list three additional actions that could be taken. Leg XII-C Obj. 9

1. Do a chart audit.
2. "The Nursing Audit for Evaluation of Patient Care," NO, June 1966.
3. Interview chairman of Nursing Audit Committee.
4. Attend a meeting of the Nursing Audit Committee.
5. NLN publication - "The Nursing Audit," Helen Benedekter.
6. NLN publication No. 84 - "The Nursing Audit," Dunn and Morgan.
7. The Nursing Audit, Maria C. Phaneuf, Chap. 2.

C. Enrichment:

1. Examine the hospital bill of a patient to become familiar with the costs. Catagorize the charges - highest per day and check for costs that could have been avoided.

2. Interview the hospital's pharmacist as to cost of hospital medications versus private pharmacy, what method of dispensing drugs is least expensive etc.

3. Interview the head of Central Processing as to costs comparison of disposable and non-disposable equipment, "false economy" practiced, such as reusing disposable equipment to "save" costs.

Module 5

1. _____ The World Health Organization is designed to assure responsibility for total health care of a defined population on the basis of fixed annual contracts.

2. _____ The PSRO is a federal law designed to monitor and control medical care.

3. _____ Medicare and Medicaid are similar types of health insurance programs.

4. _____ Blue Cross/Blue Shield are private insurance plans designed to cover hospital and physician costs.

5. _____ An evaluation of the facilities available and services provided by the hospital is called audit.

6. _____ An HMO is designed to assure total health care of a defined population.

1. Butler is located in the _____ Health Service Region.

2. List 3 programs currently being carried out by BCMH to evaluate, verify and improve patient care:

3. Briefly describe one current national health insurance bill currently pending in legislation. (25 words or less)

4. What are three objectives of the Problem-Oriented Medical Records?

5. An Extended Care Facility is:

6. List three actions a nurse could take to help keep the cost of hospitalization down for one of the following and explain how each would be effective.

   a. 75 year-old comatose client
   b. 40 year-old post-operative cholecystectomy client
   c. A 24 year-old active tuberculosis client

Module 6

BEAT THE NURSE CURSE

A. Purpose: Upon completion of this unit, the student should be aware of the opportunities available to the professional nurse and the qualifications required for those opportunities. The student should also understand more fully what determines success or failure in any type of work and appreciate the important practices in securing and resigning from positions.

B. OBJECTIVES	LEARNING ALTERNATIVES
1. Describe how you would obtain information on job opportunities.	1. Steppingstones to Professional Nursing, Cafferty & Sugarman, Chap. 23. 2. Lecture - local recruiters. 3. Obtain information about job opportunities from Career Resource Center on campus for a given week. 4. "Assessing Growth Potential," AJN, Apr. 1974.
2. List at least three aspects of a job that are important to you and why, and state or role play how you would find out this information from an employer during an interview. Leg XII-A Obj. 17.	1. "Assessing Growth Potential," AJN, Apr. 1974. 2. Group discussions & reports.
3. Demonstrate or role play applying for a job as a staff nurse in writing and during a personal interview using the criteria of anticipating what information the employing agency will need from you and what you will need from them in order to make a decision concerning their offering and your accepting a job at that agency. Leg XII-A Obj. 16	1. Write a letter of application. 2. Be prepared to role play the applicant as staff nurse or the employer.
4. Describe what items should be included in your budget.	1. Plan a monthly budget on a current starting salary for an RN. 2. "Proven & Practical Ways to Handle Money Better," The Changing Times, July 1970. 3. Cafferty & Sugarman, Chap. 20.
5. Discuss what services are available through professional organizations in the area of economic security.	1. "What About Pensions?" Nursing Clinics of North America, Sept. 1974. 2. Write to ANA headquarters about economic security.
6. List three nursing opportunities which have declined in need and explain why.	1. Dimensions of Professional Nursing, Kelly, Chap. 24.

7. Describe the trend in nursing opportunities, list four examples of current opportunities.

8. List 5 reasons why a person might wish to leave a position and explain how long you should remain in a position before resigning.

D. Enrichment:

1. Survey community to determine how many types of positions nurses are maintaining in area.

E. Evaluation:

1. Letters of application and resignation.

2. Evaluation of report on objective #2.

1. Lecture.
2. Cafferty & Sugarman, Chap. 24.

1. Write a letter of resignation.

Module 7

A THOUSAND FACES

A. Purpose: Upon completion of this module, the student will be familiar with some of the personal and professional problems which confront graduate nurses, and also will be able to utilize some of the principles used as a guide in dealing with various types of professional problems and situations.

B. OBJECTIVES	LEARNING ALTERNATIVES
1. List at least three changes in your behavior that you anticipate occuring to yourself as you change your role from student to new graduate to experienced RN and state why each may occur and what it means. Leg XII-A Obj. 2	1. Develop a questionnaire and interview several new graduates in local hospital. 2. Group discussions and reports. 3. "Transition from Student to Graduate." AJN, Dec. 1967.
2. List three specific problems you anticipate encountering as a new graduate in your local hospital and describe at least one way of handling each, based on a problem-solving approach. Leg XII-A Obj. 3	1. "Nursing as a Career," AJN, June 1969. 2. Legs Audio Tape #12 - Side 2, "Conflicts in Values." 3. "Grouping Newcomers on an Orientation Unit," AJN, Feb. 1970.
3. Demonstrate receiving a shift report from another person which results in your receiving and being able to repeat verbally or in writing all of the information that was predetermined as being pertinent to your assuming responsibility for any of the following assignments: Medication nurse for 16 clients Treatment nurse for 16 clients Total care for 4 clients Leg XII-A Obj. 5	1. Group discussion. 2. Audio Tape #1 - Reporting. 3. Attend shift report and be prepared to assume the role of any of the three listed assignments.
4. List the observations you would plan to make and describe how you would make them immediately following or during the shift report of each client in objective 3 to prepare for your assignment. Leg XII-A Obj. 6	1. Group discussion. 2. Observe medication nurse, treatment nurse, & primary nurse on the clinical unit. 3. "Night Report - Orthopedics," AJN, Nov. 1969. 4. Create your own form as an assignment organizer.
5. Demonstrate either orally or in writing that you have listened to a verbal exchange between a staff member and yourself of from 1 to 5 min. (e.g., orders from a physician, report from an aide or LPN, introduction of a new staff member, etc.) by either repeating the information heard or by carrying out the actions required. Leg XII-A Obj. 1	1. Observe this interaction on the clinical area and be prepared to role play the situation in class.

6. Given a list of statements, select which give directions in each of the following ways: as a direct order, as an implied direction, as a request. Leg XII-A Obj. 11

7. List at least three ways that your hospital nursing service administrator is kept informed of each client's condition and any sudden change in condition, each eight hours. Leg XII-A Obj. 9

C. ENRICHMENTS:

1. Think of an RN whom you admire and identify 5 behaviors which you believe are desirable as a graduate nurse.

2. Evaluate your own personality as to whether you possess any of these attributes and what you can do to acquire any specific behavior.

D. EVALUATION

Test on objectives 2, 3, 6 & 7

1. Lecture.

1. Interview nursing supervisors in local hospital.

Module 7

Short answer questions

1. What will be your action as an office nurse in a general practitioner's office when the physician tells an adult patient to stand for his IM injection in the hip? You are to administer the injection.

2. You are a new graduate and have reason to suspect that the 3-11 staff nurse is stealing narcotics, what will your action be?

3. Explain how the director of nursing service may be informed of sudden changes in patients' conditions and of each patient's condition during an eight hour period.

4. List the information that needs to be communicated during a shift report.

5. Give an example of each of the following directions:

   a. A direct order
   b. An implied order
   c. A request

Module 8

YOU'VE COME A LONG WAY, NURSE

A. Purpose: Upon completion of this module the student should be able to identify the organization of administration, and also identify and implement the principles of effective leadership in any type of nursing care situation.

B. Vocabulary:

1. Authoritarian - A dictatorial climate which allows little room for recognition of the individual as a person with worth and dignity.

2. Laissez-faire - A climate which is permissive for self and others which fosters a negative reaction to standards, rules and regulations.

3. Democratic - A climate which facilitates the process of exploration and discovery of personal meaning with freedom to change and expand.

4. Team nursing - A group of nursing personnel working together to administer quality care to a group of patients under the direction of a designated leader.

5. Primary Nursing - One-to-one nurse-patient relationship. The primary nurse has complete responsibility for patients on a 24 hour basis, from admission to discharge

6. Functional Nursing - Traditional nursing method which is task oriented, such as medication nurse or treatment nurse.

7. Group dynamics - An ever changing process involving action that is both dependent and interdependent.

8. Nursing conference - Meetings held for the purposes of giving progress reports of assignments, of focusing on patient care, of acquiring information and of assessing team relationships.

9. Shift report - Communication between personnel concerning patients; floor functions, etc. at change of work periods.

10. Team report - A form of communication between a team leader and team members concerning patients' conditions and assignments.

11. Accountability - The obligation to take full responsibility for whatever occurs as a result of the individual's actions or decisions.

12. Team leader - A nurse who is responsible for a designated group of patients and the direction of her team members.

C. OBJECTIVES	LEARNING ALTERNATIVES
1. Identify and explain the five elements of administration.	1. Lecture
2. Describe three climates for nursing leadership; select which one is most effective and explain why.	1. "Resolving a Nursing Leadership Crisis," AJN, Mar. 1965. 2. Review of Team Nursing, Douglass, Chap. 4.
3. Define leadership and list five qualities of a leader.	1. Interview prominent leader in community industry, health care, nursing. 2. Write a report on a prominent nursing leader. 3. Dimensions of Professional Nursing, Kelly, Chap. 4. 4. "To Be a Good Supervisor," NO, Sept. 1965. 5. Nursing Leadership in Action, Douglass, Bevis, Chap. 7. 6. Management of Patient Care, Kron, Chap. 6.
4. Discuss how the nurse functions as a leader in team nursing, primary nursing and in a charge nurse situation.	1. Lecture. 2. "Primary Nurse," RN, Apr. 1974. 3. Professional Nursing, Spalding & Notter, Chap. 4. 4. Douglass, Chap. 3 & 5. 5. A Handbood for Head Nurses, Geitgey Chap. 10, 11, 12 & 13. 6. "Primary Nurse - Role Evaluation," NO, Oct. 1973. 7. "Why Primary Nursing?" Nursing Clinics of North America, June 1973
5. List two methods that are helpful in organizing work when caring for large groups of clients (15-30) and four actions that can be taken to help auxiliary staff members keep organized. Leg XII-A Obj. 12	1. Legs Audio Tape #14, Side 1. 2. Plan assignments for nursing care on your clinical unit - present class discussion.
6. Given a sheet of doctor's orders, demonstrate checking another person's transcription of them and finding any errors in transcribing or making them effective. Xeg XII-C Obj. 13	1. Check your patient's chart and kardex on the clinical and evaluate the transcription and effectiveness of orders.

7. List three actions that you could take as a team leader in order to obtain factual information regarding the quality of client care each one of your team members is giving and two actions that will give you information regarding completing each assignment. Leg XII-A Obj. 14	1. Group discussion and presentation. 2. "Leadership and Responsibility in Team Nursing," Nursing Clinics of North America, June 1973. 3. New Directions in Patient - Centered Nursing, Abdellah, Beland, Martin & Matheney, Chap. 1 4. Videotape cartridge 819 "Evaluation of Nursing Care," VT 5 A4246
8. Demonstrate leading a staff conference with at least three team members to problem solve a predetermined topic (client or staff), within a specified period of time, arriving at a group decision and one or more actions to take. Leg XII-A Obj. 13	1. Trainex film on staff conference. 2. Consult team leader from local hospital. 3. Audio Tape - Legs I, Reporting 1 & 2.
9. Given a shift report as a team leader, rounds, and Kardexes on a group of clients, identify what information needs to be communicated to staff members when they consist of an LPN and an aide in order for them to give safe care to each client. Leg XII-A Obj. 7	1. Role play - team conference. 2. Audio Tape - Legs 10, side 1. 3. "Making Rounds with a Purpose," NO, July 1960.
10. Demonstrate giving a shift report as a team leader for eight clients, which includes each client's name, diagnosis, room number, physician's name, care given and observations made, new orders, changes in client's condition, and any special instructions regarding care to be given in succeeding shifts; completing it in 15 minutes. Leg XII-A Obj. 8	1. Divide group into 3 smaller groups. Each small group conduct a report with a leader and recorder - Share with larger group the types of information you found necessary to give good patient care.
11. List five functions of the team leader.	1. Douglass,
12. Describe the purpose of evaluation.	1. Lecture. 2. Debate: Are Written Evaluations Helpful? 3. Write a personal evaluation based on questions in the article "Assessing Growth Potential," Apr. 1974.

D. ENRICHMENT:

1. Lead actual team conference.
2. Serve as team leader for a period of time.
3. 1 - 3 days observational experience as charge nurse.

E. EVALUATION

Module 8

1. A democratic leader is one who is:

2. List the 5 necessary elements of administration:

3. A climate for leadership which allows little room for recognition of the individual with worth and dignity is _____.

4. The obligation to take full responsibility for whatever occurs as a result of one's action or decisions is called _____.

True or False

1. _____ A primary nurse is the team leader.

2. _____ The main responsibility of a charge nurse is to make out the team assignments.

3. _____ A good team leader is one who gives explicit instructions and expects team members to carry them out.

4. _____ All team members should contribute to the formulation of an effective nursing care plan.

5. _____ Functional nursing is a new concept in nursing care being tested in some hospitals.

6. _____ The team leader should not take a patient assignment as it will prevent her from carrying out her role as a team leader.

7. _____ The team report should be attended by all team members.

8. _____ A good leader will conscientiously evaluate you only on your weak points so that you may improve.

9. _____ Primary nursing is based upon the concept of a one to one relationship for each patient.

10. _____ A good team member should report immediately to her head nurse when her patient's B.P. drops dramatically.

11. _____ A primary nurse has complete responsibility for her patients on a 24 hour basis.

12. _____ The ability to evaluate one's own skills and knowledge is an important aspect in personal growth and development.

Module 9

"RES IPSA LOQUITUR"

A. Purpose: Upon completion of this module the student shall be familiar with basic legal terms, laws and trends in legal issues which may affect the nurse in the performance of her professional responsibilities.

B. Vocabulary:

1. Contract - A term applied to a written or verbal agreement between two or more persons which is enforceable by law.

2. Tort - A term applied to a legal breach of duty other than a contract committed against another person or his property for which damages may be recovered in a civil action.

3. Assault - A term applied in law which means to give the appearance of trying to inflict injury, or to be menacing to another person.

4. Battery - A term applied in law which means to actually inflict injury upon another person.

5. Malpractice - This term applies in law to the misconduct or improper practice of any person licensed to practice his profession or duty.

6. Will - An instrument or legal declaration in which a person disposes of his property.

7. Defamation - This term applies to the publishing of anything that is injurious to the good name or reputation of another.

8. Negligence - Implies that the person accused did not use ordinary prudence and was not guided by usual or expected consideration for another.

9. Misdemeanor - A term applied to a minor offense for which statute provides a lesser punishment than for a felony.

10. Felony - A term used for a crime that is punishable by imprisonment in a state prison.

11. Crime - Commission of an act that is prohibited by law or is an ommission of a duty required by law.

12. False imprisonment - This term means to illegally restrict the freedom of another.

13. Plaintiff - The term applied to the person who brings a suit into court.

14. Defendant - The term applied to the defending persons in a law suit.

15. Summons - An official order to appear in court as a defendant to a charge.

16. Privileged communication - This is confidential information revealed during or as a result of a patient's treatment.

17. Civil law - A body of law having to do with the private rights of an individual.

18. Common law - Laws based upon customs and records of previous court decisions.

19. Libel - A term applied in law to any false and or malicious written statement, sign or picture which exposes a person to public ridicule, contempt or injures his reputation in any way.

20. Slander - A term applied to an oral statement that might cause a person to be avoided, jeered at, ridiculed or held in contempt either personally or in his occupation.

21. Statutory law - A body of law enacted by federal, state and local governments.

22. Res Ipsa Loquitur - "The thing speaks for itself" - The plaintiff is not required to prove negligence through expert witness as there is a presumption of negligence and the burden of proof shifts to the defendent.

C. OBJECTIVES	LEARNING ALTERNATIVES
1. List the necessary elements of a contract.	1. Group discussions and reports. 2. History & Trends of Professional Nursing, Griffin & Griffin, Chap. 45. 3. Dimensions of Professional Nursing, Kelly, Chap. 33. 4. Fundamentals of Nursing, Fuerst, Wolff & Weitzel, Chap. 4.
2. Describe breach of contract.	1. Group discussions and reports. 2. Griffin & Griffin, Chap. 45. 3. Law Every Nurse Should Know, Creighton, Chap. 4.
3. Define assault and battery. Give four examples of hospital situations from which these charges might arise.	1. Group discussions and reports. 2. Griffin & Griffin, Chap. 47. 3. Professional Nursing, Spalding & Notter, Chap. 6. 4. Steppingstones to Professional Nursing, Cafferty & Sugarman, Chap. 17. 5. Kelly, Chap. 22. 6. Fuerst, Wolff & Weitzel, Chap. 4. 7. The Nurse and the Law, Sarner, Chap.
4. Explain the difference between malpractice and negligence. Give two examples of each.	1. Group discussions and reports. 2. Griffin & Griffin, Chap. 45. 3. Spalding & Notter, Chap. 6. 4. Cafferty & Sugarman, Chap. 17. 5. Kelly, Chap. 22. 6. Fuerst, Wolff & Weitzel, Chap. 4. 7. "The Malpractice Problem," Nursing Clinics of North America, Sept. 1974. 8. Creighton, Chap. 7.

5. Explain the necessity of professional liability insurance for nurses.	1. Lecture. 2. Sarner, Chap. 5. 3. Creighton, Chap. 6.
6. Given a situation including facts involving a certain aspect (e.g., giving meds, ambulating a client, etc.) or nursing care, identify at least one principle of malpractice law that applies, and decide the reasonable legal consequences (if any). Leg XII-C Obj. 16	1. Role play or skit - divide class into groups and assign topics. Dramatize a courtroom scene.
7. Given a list of nursing actions, identify those that have malpractice-liability potential and indicate what changes in behavior would conform to acceptable legal standards of care. Leg XII-C Obj. 17	1. Film strip "Legal Implications in Nursing" - Trainex. 2. Review - "The Regan Report on Nursing Law."
8. Describe the three types of wills and explain the nurse's role.	1. Griffin & Griffin, Chap. 48. 2. Spalding & Notter, Chap. 15.
9. Describe "privileged communications" and the nurse's responsibility in this situation.	1. "When is a Communication Privileged," AJN, 1970. 2. Sarner, Chap. 10. 3. Kelly, Chap. 22.
10. Discuss the implications for your practice as a nurse based on the trends in legal issues.	1. Refer to "News" section of 6 or 8 recent issues of AJN for legislation which affects nursing.
11. Discuss the implication of the Patient's Bill of Rights for nursing.	1. "The Patient's Bill of Rights and the Nurse," Nursing Clinics of North America, Sept. 1974. 2. Kelly, Chap. 13.
12. Discuss the nurse's role as a political force in determining the health care delivery system.	1. "Political Action and Nursing," Nursing Clinics of North America, Sept. 1974. 2. *"Nursing Organizations as a Political Pressure Group," Nursing Forum, Vol. XII #1, 1973. 3. Kelly, Chap. 19.
13. Explain "Joint Policy Statements" and how they affect nursing.	1. "Joint Statements; Your Legal Safeguards," RN, Apr. 1971. 2. Creighton, Chap. 6.

D. ENRICHMENT:

1. Obtain one or more malpractice insurance policies "include one suggested by District Nurses Association). Read fine print and be aware of coverage provided.

2. Find out legal aspects of your hospital-college agreement - Example : Do students take orders, answer phone etc.

True or False

1. _____ The nurse is legally responsible for securing the patient's written consent for a surgical procedure.

2. _____ A paralyzed patient has refused consent for an injection but the nurse approaches him with a syringe in her hand as if she would give it. This is an example of assault.

3. _____ The only contract that is binding is a written contract.

4. _____ If a nurse has been guilty of negligent conduct but there is no injury to the patient, there is no legal liability.

5. _____ "Joint Policy Statements" are issued to give more protection to the nurse who performs tasks that were normally regarded as for physicians only - i.e. the "grey areas" of nursing practice.

1. Which of the following actions have malpractice liability potential?

   a. A nursing student giving care to patients that is normally given by an RN.
   b. A pediatric specialist who is relieving in I.C.U. because of shortage of staff.
   c. A nurse who refuses to do a certain nursing action because she does not posess the required skill.

2. Briefly describe 3 types of wills and explain the nurse's role.

3. Give an example of breach of contract.

4. List the elements of a contract.

5. What are three elements needed to establish liability in a legal action against a nurse for malpractice?

Matching

1. _____ Contract
2. _____ Tort
3. _____ Malpractice
4. _____ Negligence
5. _____ Assault
6. _____ Battery
7. _____ Privileged Communication
8. _____ Libel
9. _____ Slander
10. _____ Res Ipsa Loquitur

a. A term applied in law which means to give the appearance of trying to inflict injury, or to be menacing to another person.
b. A term applied in law which means to actually inflict injury upon another person.
c. A term applied to a written or verbal agreement between two or more persons which is enforceable by law.
d. This term applies in law to the misconduct or improper practice of any person licensed to practice his profession or duty.
e. This is confidential information revealed during or as a result of a patient's treatment.
f. A term applied to an oral statement that might cause a person to be avoided, jeered at, ridiculed or held in contempt either personally or in his occupation.
g. A term applied to a legal breach of duty other than a contract committed against another person or his property for which damages may be recovered in a civil action.
h. A term applied in law to any false and/or malicious written statement, sign or picture which exposes a person to public ridicule, contempt or injures his reputation in any way.
i. A term applied in law which implies that the person accused did not use ordinary prudence and was not guided by usual or expected consideration for another.
j. "the thing speaks for itself"

BIBLIOGRAPHY

BOOKS

1. Abdellah, Faye, et al. New Directions in Patient Centered Nursing, New York: The Macmillan Co., 1973.

2. Abdellah, Faye, et al. Patient-Centered Approaches to Nursing, 8th Edition. New York: The Macmillan Co., 1970.

3. Bullough, Bonnie and Verne Bullough. Issues in Nursing, New York: Springer Publishing Co., Inc., 1966.

4. Bullough, Bonnie and Verne Bullough. The Emergence of Modern Nursing. New York: The Macmillan Co.

5. Cafferty, Kathryn M., and Leone K. Sugarman. Steppingstones to Professional Nursing, 5th Edition. St. Louis: C.V. Mosby Company, 1971.

6. Creighton, Helen. Law Every Nurse Should Know, 2nd Edition. Philadelphia: W.V. Saunders Co., 1970.

7. Davis, Marcella, et al. Nurses in Practice, St. Louis: The C. V. Mosby Co., 1975.

8. Douglass, Laura M. Review of Team Nursing. St. Louis: The C.V. Mosby Co., 1973.

9. Douglass, Laura M. and Em Olivia Bevis. Nursing Leadership in Action, 2nd Edition. St. Louis: The C. V. Mosby Co., 1970.

10. Fuerst, Elinor, et al. Fundamentals of Nursing, 5th Edition. Philadelphia: J.B. Lippincott Co., 1974.

11. Geitgey, Doris. Handbook for Head Nurses, 2nd Edition. Philadelphia: F.A. Davis Co., 1971.

12. Griffin, Gerald and Joanne Griffin. History and Trends of Professional Nursing, 7th Edition. St. Louis: The C.V. Mosby Co., 1973.

13. Kelly, Lucie Young. Dimensions of Professional Nursing, 3rd Edition. New York: The Macmillan Publishing Co., Inc., 1975.

14. Kriegel, Julia. The Head Nurse. New York: The Macmillan Co., 1968.

15. Kron, Thora. The Management of Patient Care, 3rd Edition. Philadelphia: W.B. Saunders Co., 1971.

16. Little, Dolores E. and Doris L. Carnevali. Nursing Care Planning. Philadelphia: J.B. Lippincott Co., 1969.

17. Marram, G., et al. Primary Nursing. St. Louis: C.V. Mosby Co., 1974.

18. Mayers, Marlene G. A Systematic Approach to the Nursing Care Plan. New York: Appleton-Century-Crofts, 1972.

19. Mitchell, Pamela H. Concepts Basic to Nursing. New York: McGraw-Hill Book Co., 1973.

20. O'Brien, Maureen J. Communications and Relationships in Nursing. St. Louis: The C. V. Mosby Co., 1974.

21. Phaneuf, Maria C. The Nursing Audit. New York: Appleton-Century-Crofts,1972.

22. Rogers, Martha. An Introduction to the Theoretical Basis of Nursing. Philadelphia: F. A. Davis Co., 1971.

23. Sarner, Harvey. The Nurse and the Law. Philadelphia: W. B. Saunders Co., 1969.

24. Spalding, Eugenia K. and Lucille E. Notter. Professional Nursing, 8th Edition. Philadelphia: J.B. Lippincott Co., 1970.

25. Story, D. Career Mobility. St. Louis: The C.V. Mosby Co., 1974.

26. Swansburg, Russel C. Team Nursing. New York: G.P. Putnam's Sons, 1968.

27. Villet, Barbara. Head Nurse. Garden City, New York: Doubleday and Co., Inc., 1975.

28. Yura, Helan and Mary Walsh. The Nursing Process: Assessing, Planning, Implementing, and Evaluation. Washington D.C.: The Catholic University of America Press, 1967.

PERIODICALS

1. Amenta, Madalon M. "Free Clinics Change the Scene," American Journal of Nursing, Vol. 74 No. 2:284-288 (Feb 1974)

2. Berggren, Helen J. and A. Dawn Zagornik. "Teaching Nursing Process to Beginning Students, " Nursing Outlook, Vol. 16 No. 7:32-35 (July 1968)

3. Block, Doris. "Some Crucial Terms in Nursing: What Do They Really Mean?", Nursing Outlook, Vol. 22 No. 11:689-694 (Nov. 1974)

4. Bowman, Rosemary A. "The Nursing Organization as a Political Pressure Group," Nursing Forum, Vol. 12 No. 1:73-81 (1973)

5. Bueno, Dorothy L., et al. "Grouping Newcomers on an Orientation Unit," American Journal of Nursing, Vol. 70 No. 2:295-296 (Feb. 1970)

6. Carnegie, M. Elizabeth. "The Patient's Bill of Rights and the Nurse," Nursing Clinics of North America, Vol. 9 No. 3:557-562 (Sept. 1974)

7. Carrieri, Virginia K. and Judith Sitzman. "Components of the Nursing Process," Nursing Clinics of North America, Vol. 6 No. 1 (March 1971)

8. Creighton, Helen. "The Malpractice Problem," Nursing Clinics of North America, Vol. 9 No. 3:425-430 (Sept. 1974)

9. Christy, Theresa, et al. "Illustrious Past, Challenging Future," American Journal of Nursing, Vol. 71 No. 9:1773-1800 (Sept. 1971)

10. Day, Philip E. "The International Nursing Index," American Journal of Nursing, Vol. 66 No. 4:783-786 (Apr. 1966)

11. Dickey, Frank G. "Accreditation: What About the Public?", Nursing Outlook, Vol. 19 No. 10:668-669 (Oct. 1971)

12. Dock, Lavinia L. "Lillian D. Wald," Nursing Outlook, Vol. 19 No. 10:659-660, (Oct. 1971)

13. Donovan, Helen M. "Making Rounds With a Purpose," Nursing Outlook, Vol. 8 No. 7: 394-395 (July 1960)

14. Dunkley, Pearl H. "The ANA Certification Program," Nursing Clinics of North America, Vol. 9 No. 3:485-495 (Sept. 1974)

15. Edwards, Carl N. and Gretta Gribble. "Nursing as a Career, How Students Perceive it," American Journal of Nursing, Vol. 69 No. 6:1223-1225 (June 1969)

16. Eng, Suzanne M. "Health Services Designated," Pa. Health, Vol. 36 No. 2:, (Summer 1975)

17. Greenburg, Sidney M. and Robert Galton. "Nurses are Key in H.I.P. Experiment to Cut Health Care Costs," American Journal of Nursing, Vol. 72 No. 2:272-275 (Feb 1972)

18. Guy, Joan S. "Institutional Licensure: A Dilemma For Nurses," Nursing Clinics of North America, Vol. 9 No. 3:497-504 (Sept. 1974)

19. Hardiman, Margaret A. "Interviewing or Social Chit Chat," American Journal of Nursing, Vol. 71 No. 7:1379-1381 (July 1971)

20. Heidgerken, Loretta. "Nursing as a Career: Is it Relevant," American Journal of Nursing, Vol. 69 No. 6:1217-1222 (June 1969)

21. Hershey, Nathan. "When is Communication Privileged," American Journal of Nursing Vol. 70 No. 1:112-113 (Jan 1970)

22. Ishiyama, et al. "Resolving Nursing Leadership Crisis," American Journal of Nursing, Vol. 65 No. 3:106 (March 1965)

23. Isler, Charlotte. "Florence Nightingale," American Journal of Nursing, Vol. 33 No. 5:35 (May 1970)

24. Kinley, Anne E. "Night Report," American Journal of Nursing, Vol. 69 No. 11 2417-2419 (Nov. 1969)

25. Kramer, Henry T. "What About Pensions?", Nursing Clinics of North America, Vol. 9 No. 3:513-522 (Sept. 1974)

26. Lenburg, Carrie B. and Walter L. Johnson. "Career Mobility Through Nursing Education," Nursing Outlook, Vol. 22 No. 4:265-269 (April 1974)

27. Leo, Anne M. "Leadership and Responsibility in Team Nursing," Nursing Clinics of North America, Vol. 8 No. 2:267-280 (June 1973)

28. Lipman, Michael. "Joint Statements," American Journal of Nursing, Vol. 34 No. 4: 40 (Apr. 1971)

29. Logsdon, Audrey. "Why Primary Nursing?", Nursing Clinics of North America, Vol. 8 No. 2:283-291 (June 1973)

30. Lum, Doman. "HMO, Delivery System," American Journal of Public Health, p. 1192-1201 (Nov. 1975)

31. Mauksch, Ingeborg. "This I Believe About the NLN," Nursing Outlook, Vol. 19 No. 2:98-102 (Feb. 1971)

32. McGriff, Erline P. "Continuing Education in Nursing," Nursing Clinics of North America, Vol. 8 No. 2:325-335 (June 1973)

33. McPhetridge, L. Mae. "Nursing History: One Means to Personalized Care," American Journal of Nursing, Vol. 68 No. 1:68-75 (Jan. 1968)

34. Merton, Robert K. "The Functions of the Professional Association," American Journal of Nursing, Vol. 58 No. 6:50-54 (June 1958)

35. Mundinger, Mary O'Neil. "Primary Nurse-Role Evaluation," Nursing Outlook, Vol. 21 No. 10:642-645 (Oct. 1973)

36. Orme, Ju[illegible] nd Rosemary Lindkeek. "Nursing Participation in Medical Peer Review," Nursing Outlook, Vol. 22 No.1:27-29 (Jan. 1974)

37. Perdue, Barbara Lee. "To Be a Good Supervisor," Nursing Outlook, Vol. 13 No. 9: 65-66 (Sept. 1965)

38. Phaneuf, Maria C. "The Nurse Audit for Evaluation of Patient Care," Nursing Outlook, Vol. 14 No. 6:51-54 (June 1966)

39. Reres, Mary. "Assessing Growth Potential," American Journal of Nursing, Vol. 74 No. 4:670 (Apr. 1974)

40. Robinson, Alice M. "Primary Nurse," American Journal of Nursing, Vol. 37 No. 4 31-34 (Apr. 1974)

41. Schmitt, Edith. "Transition from Student to Graduate," American Journal of Nursing, Vol. 67 No. 12:2573-2575 (Dec. 1967)

42. Shapiro, Irving S. "HMO's and Health Education," American Journal of Public Health, 469-473 (May 1975)

43. Shetland, Margaret L. "This I Believe About Career Ladders," Nursing Outlook, Vol. 18 No. 9:32-35 (Sept. 1970)

44. Stahl, Adele G. "State Boards of Nursing: Legal Aspects," Nursing Clinics of North America, Vol. 9 No. 3:505-512 (Sept. 1974)

45. Stanton, Marjorie. "Political Action and Nursing," Nursing Clinics of North America, Vol. 9 No. 3:579-585 (Spet. 1974)

46. Thurston, Hester I. "Education for Episodic and Distributive Care," Nursing Outlook, Vol. 20 No. 8:519-523 (Aug. 1972)

47. Wood, Lucille. "Proposal: A Career Plan for Nursing," American Journal of Nursing, Vol. 73 No. 5:832-835 (May 1973)

REPORTS & PAMPHLETS

1. American Journal of Nursing, "ANA Convention '74," Vol. 74:1259-1275 (July 1974)

2. American Journal of Nursing, "Establishing Standards for Nursing Practice," Vol. 69:1458-1463 (July 1969)

3. American Journal of Nursing, "Resolutions on Institutional Licensure," Vol. 72: 1106 (June 1972)

4. Changing Times, "Proven and Practical Ways to Handle Money Better," Vol. 24 No. 1:25-29 (July 1970)

5. Nursing Outlook, "Educational Preparation for Nursing - 1974," Vol. 23 No. 9: 578-582 (Sept. 1975)

6. Pennsylvania Health, "The Health Department and the Comprehensive Health Care Act," Vol. 34 No. 4:4-5(Winter 1973)

7. Pennsylvania Health, "New Directions in Comprehensive Health Planning," Vol. 34 No. 4:6-7 Winter 1973

8. Pennsylvania Health, "Why We Need a Comprehensive Health Care Act," Vol. 36 No. 2:2-5 (Summer 1975)

9. R.N., "Trouble in Texas: Institutional Licensure for R.N.'s?", Vol. 37 No. 4: 29 (April 1974)

10. "An Abstract for Action." Jerome P. Lysaught

11. "Distributive Nursing Practice"

12. "Episodic Nursing Practice."

13. "The Regan Report on Nursing Law," - Monthly publication.

APPENDIX D

FOREWARD

The task analysis survey reflected in this study is patterned after two previous studies concerning allied health professions. One study, the Allied Health Professions Project of the University of California, Los Angeles, was a national project. The second study, conducted by Educational Projects Incorporated of Pennsylvania, only reflected the Middle Atlantic region. This task analysis survey reflects mainly western Pennsylvania and is restricted to the field of nursing. It is also a part of a larger project in nursing for Butler County Community College.

APPROACH

The task analysis approach was utilized in this study to develop and evaluate curriculum from the standpoint of competencies and behaviors expected of an individual employed at a specific level of nursing. The specific objectives of the study were:

1. To determine what tasks are competencies expected of each level of nursing personnel within the area of general nursing care.

2. To identify areas of overlapping tasks in nursing care by various levels of nursing personnel.

3. To articulate these tasks to the Butler County Community College nursing curriculum for three specific levels of nursing personnel.

PROCEDURE

The general procedure utilized in this project was as follows:

1. Development of a task inventory to be utilized as the instrument for gathering data.

2. Selection of respondents to survey in order to verify the inventory of tasks.

3. Distribution of the task survey.

4. Analysis of data from survey.

5. Articulation of survey data to curriculum.

Development of a Task Inventory

To save time and resources, an inventory derived from the previously mentioned projects was utilized as a guideline to determine competencies expected of levels of nursing personnel in this western area of Pennsylvania where the Butler County Community College graduates were most likely to be employed. The inventory developed for the purposes of this study was prepared in two forms; one form for acute care settings, and one form for interim or chronic care settings.

Selection of the Respondents

The selection of the respondents was based on a geographical area representative of locations where Butler County Community College graduates might be employed. Due to the levels of nursing personnel involved, the selection of respondents included nursing homes as well as hospitals. The cooperating institutions are presented in Exhibit I and reflect mainly rural settings but are representative of both acute and chronic health care facilities. All of the facilities selected had been previously approached and employers requested to submit job descriptions for the levels of nursing personnel they employed.

Distribution of the Task Survey

After the facilities for the survey had been selected, letters were sent requesting cooperation and permission to administer the questionnaires at those institutions. Of the 18 facilities presented in Exhibit I, all except 4 were personally visited. Those four hospitals, noted by an asterisk, were mailed questionnaires due to inclement weather conditions and lack of time for rescheduling visits. There was a total of 18 institutions involved with the survey in 9 counties of western Pennsylvania. The cooperation of the respondents, as well as the influence of the personal administration of the questionnaires by the research personnel is obvious in that of a total of 101 questionnaires, 93 were completed and returned for a 93% response. Actually, all the questionnaires were returned, but 8 forms were not returned in time to be included in the data.

ANALYSIS OF DATA

Overview

Nursing is a very traditional field as far as roles and functions of the levels of personnel. Yet, nursing is now in a transitional period. The positions of Registered Nurse, Licensed Practical Nurse, and Health Assistant seem to have overlapping functions and confusion as to what function belongs to which position. The confusion is not so much evident in job descriptions but is apparent in actual performance expected on assignment. The responses show the overlap of positions and tasks which lends to the confusion.

Sample

A total of 93 questionnaires were returned, with 54 from hospitals and 39 from nursing homes. Of the 93 responses, 82 were in the Registered Nurse category, 8 in the Licensed Practical Nurse category and 3 in the Health Assistant category.

The ages, years of experience and educational preparation are shown in the Summary of Background Data Chart. The majority of Registered Nurses (75%), regardless of position, were diploma nurses. In the Administrative category 75% of the respondents were diploma nurses. Only 1 respondent, a staff nurse, was an Associate Degree graduate. Approximately 66% of the Licensed Practical Nurse group received their preparation in a Vocational-Technical program, while 33% received 1 year in a Community College program. In general, the nurse aides, though only 3, received no formal program or training.

Results

The following pages present the results of the survey. The tasks were grouped into 7 categories. Although the tasks and situations varied slightly between hospitals and nursing homes, they were sufficiently similar to be in the same broad categories. The major categories were:

A. Safety, Comfort and Personal Hygiene Measures
B. Food, Fluid and Elimination Measures
C. Treatments and Procedures
D. Diagnostic Activities
E. Medications
F. Nursing Assessment and Intervention
G. Leadership

For each of these 7 categories a graph is utilized to illustrate the percentage response of competencies by tasks expected of the three levels of nursing personnel, based on competencies expected of a Health Assistant, a Licensed Practical Nurse, or a Registered Nurse. Any percentage response at 5% expectation or less was considered nonsignificant.

Exhibit I

COMPLETED QUESTIONNAIRES

Facilities	County	Bed Capacity	RN	LPN	HA
. Hospitals (11)					
*Altoona	Blair	410	211	75	92
Butler County Mem.	Butler	355	188	31	97
Clarion	Clarion	84	40	20	13
*DuBois	Clearfield	138	74	41	28
Franklin	Venango	189	90	40	26
Greenville	Mercer	200	164	43	68
Grove City	Mercer	95	58	18	33
Johnstown *Mercy	Cambria	221	170	100	48
*Conemaugh Valley Mem.		621	332	131	79
Kittanning	Armstrong	214	118	5	86
Oil City	Venango	193	120	28	90
. Nursing Homes (7)					
Bonetti's	Butler	40	3	3	13
Chicora Medical Center	Butler	34	8	1	16
Lawrence County Home	Lawrence	131	5	12	32
Overlook Medical Clinic	Lawrence	105	16	19	21
St. John's Lutheran Home	Butler	285	23	16	100
Sunnyview	Butler	260	13	36	78
Zelienople Old Peoples' Home	Butler	201	16	14	82

58

Summary of Background Data

A. Hospital Respondents

	All	Nursing Administration	Assistant Nursing Administration	Staff Nursing (RN)
1. Sample size	54	12	31	11
2. Age Mean	36.6	46.6	36.5	27
3. Years of experience Mean	13.7	21.9	11.9	7.4
4. Level of education				
High School				
Vocational-Technical School				
Some College				
Associate degree	1			1
Diploma	39	4	25	10
Bachelors degree				
B.S.N.	1		1	
B. School Nursing	1		1	
B.S.	3	2	3	
B.S. Ed.	1		1	
Master's Degree				
M. Ed.	2	2		
M. N. Ed.	2	2		
M.N.	2	2		

B. Nursing Home Respondents

				R.N.	L.P.N.	N.
1. Sample size	39	7	15	6	8	3
2. Age	38.8	32.1	43.3	37	30.8	48
3. Years of experience	7.6	14.9	16.8	12.3	5.8	2
4. Level of education						
High School	3					
Vocational-Technical School	4					3
Some college	2				4	
Diploma	23	3	14	6	2	
Associate degree						
B.S.N.	1	1				
M. Ed.	1		1			
Other	4	3				

HOSPITALS

A. Safety, Comfort, and Personal Hygiene Measures

Tasks	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75 10
1. Explain and use safety measures (e.g. restraints, side rails) in caring for patients	100%	98%	86.5%
2. Observe and enforce safety and fire regulations (e.g. spilled water, no smoking signs)	100%	100%	96%
3. Carry out aseptic technique when using sterile supplies (e.g. syringes, dressings) ...	100%	98%	38.2%
4. Prevent transferring pathogens between patients (e.g. wash hands, change gowns)	100%	100%	95%
5. Give or assist patients to take baths.....	100%	100%	10
6. Assist patients with personal hygiene (e.g. hair, nails, skin, teeth).....	98%	98%	95.7%
7. Give skin care to bedridden patients (e.g. in casts, restraints, coma)	100%	100%	76.5%
8. Turn and position patients in correct body alignment	100%	98%	88.2%
9. Use supportive and comfort devices (e.g. bed cradles, footboards).....	98%	98%	84.5%
10. Assist patients in range of motion exercises	98%	98%	52.5%
11. Assist patients to become ambulatory (e.g. dangle, get out of bed).....	98%	98%	92.7

NURSING HOMES

A. Safety, Comfort, and Personal Hygiene Measures

TASKS	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75 10
1. Explain and use safety measures (e.g., restraints, side rails) in caring for patients	100%	100%	94.2%
2. Observe and enforce safety and fire regulations (e.g., spilled water, no smoking signs).....	100%	100%	98.2%
3. Carry out aseptic technique when using sterile supplies (e.g., syringes, dressings)..	100%	100%	40.1%
4. Prevent transferring pathogens between patients (e.g., wash hands, change gowns).....	100%	100%	89.8%
5. Give or assist patients to take baths.....	94.5%	96.5%	99
6. Assist patients with personal hygiene (e.g., hair, nails, skin, teeth).....	93%	93%	97.
7. Give skin care to bedridden patients (e.g., in casts, restraints, coma).....	94.5%	98%	91.2%
8. Turn and position patients in correct body alignment.....	100%	100%	87.2%
9. Use supportive and comfort devices (e.g., bed cradles, footboards).....	94%	94%	82.5%
10. Assist patients in range of motion exercises.....	96%	91.5%	84%

NURSING HOMES

Safety, Comfort, and Personal Hygiene Measures

TASKS	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75 100
11. Assist patients to become ambulatory (e.g., dangle, get out of bed).....	96%	96%	93.2%
12. Assist a patient in the use of crutches, walker etc...	100%	100%	88.7%

68

A. SAFETY, COMFORT & PERSONAL HYGIENE MEASURES

Results

The tasks in this area relate to the patient's need for a safe, comfortable environment, the need for movement, and the need for personal hygiene. One additional task was added to the nursing home survey to include devices utilized frequently in a nursing home situation.

These tasks are competencies expected of all levels of nursing personnel. The percentage response indicates only two exceptions of any significance to expected competencies in this category. In hospital settings Health Assistants expected competencies for Task 3 at 38.2% response for aseptic technique, and Task 11 for Range of Motion exercises at 52.5% response indicate these tasks are not usually expected of this level of nursing personnel. In nursing home settings the most significant deviation was for task 3 at 40.1% response. Thus, in both settings, aseptic technique is not an expected competency for the Health Assistant. This is justifiable due to the basic scientific principles necessary to understand aseptic technique and the task probably should have been included in category C.

Therefore, tasks in this category are expected competencies of all three levels of nursing personnel with the noted exceptions.

HOSPITALS

B. Food, Fluid & Elimination Measures

TASKS	RN	LPN	HEALTH ASSISTANTS
	% 25 50 75 100	25 50 75 100	25 50 75 1
Assist patients to eat:			
12. Infant	98%	98%	91.
13. Toddler	100%	98%	77%
14. Child	98%	98%	10
15. Adult	94%	96%	9
16. Geriatric patient	76%	86%	79.1%
17. Administer tube feedings (e. g. nasogastric, gavage, gastrostomy)	100%	76%	0
18. Start intravenous infusion ...	100%	0	0
19. Hang, regulate, and discontinue intravenous fluids ...	100%	49%	0
20. Observe, measure, and record food and fluid intake and output (include drainage bottles)	94%	94%	73%
21. Assist patients with natural elimination (bedpan, urinal)	98%	98%	94.
22. Prepare and give enemas and Colonic irrigations	98%	100%	70.8%
23. Remove fecal impactions	98%	98%	49.2%
24. Insert urinary catheters ...	100%	100%	46.5 - male 12% - female
25. Irrigate urinary catheters ..	100%	100%	29.5%

NURSING HOMES

B. Food, Fluid & Elimination Measures

TASKS	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75
13. Assist patients to eat....	89.5%	94%	95.5%
14. Administer tube feedings (e.g., nasogastric, gavage, gastrostomy)	100%	90.5%	0
15. Start intravenous infusion..	100%	27%	0
16. Hang, regulate, and discontinue intravenous fluids ...	100%	64%	0
17. Observe, measure, and record food and fluid intake and output (include drainage bottles)	98%	98%	79.7%
18. Assist patients with natural elimination (bedpan, urinal)	90.5%	92.5%	96.2
19. Prepare and give enemas and colonic irrigations.....	92.5%	92.5%	56%
20. Remove fecal impactions....	100%	96%	36%
21. Insert urinary catheters....	100%	96%	8%
22. Irrigate urinary catheters..	98%	98%	15.2%

B. FOOD, FLUID & ELIMINATION MEASURES

Results

The activities in this category are concerned with the patient's need for food, fluids and elimination. The major areas of difference in expected competencies were quite obvious in the percentage response graphs. In hospitals, Tasks 17-19, show that Health Assistants are not expected to be involved at all, although they are expected to do Task 20 at 73%. However, Licensed Practical Nurses are expected to administer tube feedings (76%) and to hang, regulate and discontinue intravenous fluids (49%), but are not expected to start intravenous infusions. With elimination measures, Tasks 22-25 show significant variations. Health Assistants were rated below 50% expectations for each task. In Task 22, the inclusion of colonic irrigations may have affected the response, and the 49.2% response for removal of fecal impactions is interesting. A variation between male and female Health Assistants on Task 24 shows more expected of the male. Health Assistants are also not expected to irrigate urinary catheters.

In nursing homes, Health Assistants were not expected to possess competencies for tube feedings or intravenous infusions. On the other hand, Licensed Practical Nurses were not only expected to have more competency in hanging, regulating and discontinuing intravenous than in hospitals, but a 27% response expected this level to start intravenous infusions. The responses showed less expectations of Health Assistants in procedures dealing with fecal or urinary eliminations. Most nursing homes informed us that the nurses (RN's or LPN's) did these tasks and some employed no male assistants at all.

HOSPITALS

C. Treatments and Procedures

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75 100
26. Insert nasogastric tubes	100%	18%	0
Check and maintain drainage tubing with suction:			
27. Chest tubes	82%	45%	0
28. N/G tubes	100%	18%	0
29. Gastrostomy	100%	66%	0
30. Irrigate and instill solutions into tubings (e.g. colostomy, drains).....	100%	66%	0
31. Irrigate and instill solutions directly into body openings (e.g. douche, wounds)	100%	67%	0
32. Assist patients to turn, cough and deep breathe	100%	97%	74.5%
33. Set up for and assist physician with procedures (e.g. examinations, cut downs, L.P.'s	100%	81%	5%
34. Remove sutures and skin clips.	86%	34%	0
35. Prepare equipment and administer inhalation therapy....	75%	65%	0
36. Assist patients with postural drainage		61%	15.2%

HOSPITALS

Treatments and Procedures

TASKS	RN %	LPN %	HEALTH ASSISTANTS %
Tracheostomy Care:			
37. Suction	100%	52%	0
38. Remove, clean and replace inner cannula	100%	36%	0
39. Set up and operate commonly used O_2 equipment (e.g., nasal catheters, masks, tents, croupettes)	100%	83%	33%
40. Give mouth-to-mouth resuscitation	100%	100%	92.2
Assemble commonly used orthopedic equipment:			
41. Beds and frames	100%	94%	71.7%
42. Traction	97%	82%	64.2%
43. Operate commonly used orthopedic beds and frames...	100%	96%	66.2%
44. Maintain patients in traction	98%	92%	44%
Apply bandages:			
45. Ace	100%	97%	50%
46. Scultetus	100%	98%	53%
47. Pressure	100%	78%	10.5%
48. Slings	100%	98%	49.8%
49. Splints	100%	78%	19.3%

NURSING HOMES

C. Treatments and Procedures

TASKS	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75
23. Insert nasogastric tubes...	100%	14.5%	0
Check and maintain drainage tubing with suction:			
24. N/G tubes.....	100%	73%	5.5%
25. Irrigate and instill solutions into tubings (e.g., colostomy, drains).....	100%	90.5%	9%
26. Irrigate and instill solutions directly into body openings (e.g., douche, wounds).....	100%	88%	9%
27. Assist patients to turn, cough, and deep breathe....	96%	96%	78%
Care for tracheostomy:			
28. Suction.....	100%	80.5%	5.5%
29. Remove, clean and replace inner cannula.....	100%	80.5%	0
30. Set up and operate commonly used O_2 equipment (e.g., nasal catheters, masks, tents)	100%	94.5%	22%
31. Give mouth-to-mouth resuscitation.....	100%	98%	79%
Assemble commonly used orthopedic equipment:			
32. Beds and frames.....	73%	60.5%	54.2%
33. Traction.....	77%	59%	22%

96

NURSING HOMES

Treatments and Procedures

TASKS	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75 1
34. Operate commonly used orthopedic beds and frames.....	94%	92.5%	76.2%
35. Maintain patients in traction	100%	96%	53%
Apply bandages:			
36. Ace.....	100%	100%	54.2%
37. Scultetus.....	100%	100%	30%
38. Pressure.....	100%	94.5%	21.5%
39. Slings.....	96%	96%	67.5%
40. Splints.....	98%	88%	21%

C. TREATMENTS & PROCEDURES

Results

In this category the hospital responses illustrated a questionable difference of expected competencies for the Licensed Practical Nurse with a significant difference between expectations concerning chest tubes, nasogastric tubes and gastrostomy tubes (Tasks 27-29) all dealing with drainage tubing with suction.

In nursing homes again respondents expected more competency from the Licensed Practical Nurse in most tasks than did hospital respondents.

HOSPITALS

D. Diagnostic Activities

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75
50. Take TPR and BP	100%	98.5%	92.2%
51. Determine central venous pressure	100%	30%	0
52. Set up and operate EKG equipment.....	96%	54.5%	10%
53. Recognize and report abnormalities recorded on monitors, scopes, EKG strips	100%	34%	0
54. Apply and read skin tests ...	100%	35%	0
55. Obtain nose, throat, stool, urine, and wound specimens ..	100%	92%	15.5%
Test urine for:			
56. Sugar	100%	100%	90.8%
57. Acetone	98%	98%	81.3%
58. Specific Gravity	91.5%	84%	36.5%
59. pH	93.5%	81.5%	38.7%

NURSING HOMES

D. Diagnostic Activities

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75 1
41. Take TPR and BP.....	100%	100%	64.5%
42. Set up and operate EKG equipment.....	100%	30%	0
43. Apply and read skin tests..	100%	44%	0
44. Obtain nose, throat, stool, urine, and wound specimens..	60%	64.5%	16.5%
Test urine for:			
45. Sugar.....	96%	93.5%	69.7%
46. Acetone.....	91.5%	89.5%	54%
47. Specific Gravity.....	93%	80.5%	19%
48. pH.....	98%	83%	24.5%

D. DIAGNOSTIC ACTIVITIES

Results

In this area dealing with obtaining data for diagnostic activities, the variations of expectations were reversed from previous categories. Here, the hospital respondents expected more of the Licensed Practical Nurses and the Health Assistants than did nursing home respondents.

HOSPITALS

E. Medications

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75
Prepare and administer medications:			
60. Oral	100%	100%	0
61. Rectal	100%	100%	0
62. IM	100%	88.5%	0
63. Subcutaneous	100%	86.5%	0
64. Intradermal	100%	76.5%	0
65. Inhaled	98%	70%	0
66. I.V.	100%	19.5%	0
67. Eye, nose, and ear drops ...	100%	98%	82%
68. Topical	100%	91%	

NURSING HOMES

E. Medications

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75
Prepare and administer medications:			
49. Oral.....	100%	96.5%	0
50. Rectal.....	100%	98%	0
51. IM.....	100%	98%	0
52. Subcutaneous.....	96%	86%	0
53. Intradermal.....	100%	74.5%	0
54. Inhaled.....	100%	78.5%	0
55. I.V.....	100%	30%	0
56. Eye, nose, and ear drops....	100%	98%	0
57. Topical.....	98%	93%	21%

E. MEDICATIONS

Results

There appears to be little significant difference between expected competencies of the Registered Nurse and Licensed Practical Nurse in this functional area. The one surprising percentage for hospitals and nursing homes is the task concerning preparation and administration of IV medications with a 19.5% and a 30% response expectations of the Licensed Practical Nurse. Also, a larger percentage response in the area of topical medications was illustrated for the Health Assistant in hospitals as opposed to nursing homes.

HOSPITALS

F. Nursing Assessment & Intervention

TASKS	RN (%)	LPN (%)	HEALTH ASSISTANTS (%)
Re Susan, age 2, who has just returned from the operating room with a new tracheostomy:			
69. Have present and operational at the bedside a suction machine and tracheostomy care tray upon Susan's return to her room	100%	75.2%	21%
70. Recognize that Susan's arms are not restrained as she is admitted to her room after surgery	98%	93%	62%
71. Wait until Susan is quiet before rechecking her pulse rate which is 180 while crying	98%	94%	22.5%
72. Notice secretions bubbling in the tracheostomy upon entering Susan's room	100%	90%	42.8%
73. Organize care to insure Susan remains in an environment of increased oxygen and humidity as much as possible	100%	48%	0
74. Suction Susan's tracheostomy after noticing her to be unusually restless, even though no gurgling sound is heard ..	100%	39%	0
75. Notice Susan staring at the door in her mother's absence .	98%	71.5%	51.5%
76. Provide a constant means by which Susan can initiate communication	100%	89.5%	45.3%

105

HOSPITALS

Nursing Assessment & Intervention

TASKS	RN % (25, 50, 75, 100)	LPN % (25, 50, 75, 100)	HEALTH ASSISTANTS % (25, 50, 75, 100)
77. Organize Susan's activities so that a familiar routine similar to home is established	100%	65%	25%
Re Karl, age 15, hospitalized as a newly diagnosed diabetic:			
78. Introduce herself to Karl when he is admitted, orient him to the ward, and introduce him to other teenage patients ..	100%	94.5%	75%
79. Recognize steps to be taken upon noting an acetone odor while assisting Karl with his oral hygiene	100%	79%	10%
80. Sit down and listen with interest when Karl complains bitterly that he cannot eat anything that he likes anymore	100%	85%	47.8%
81. Encourage Karl to carry out his care independently, as he is able to accept new responsibilities	100%	83%	27.3%
82. Show Karl how to give his insulin and test his urine ...	100%	54%	0
83. Delay giving Karl a scheduled dose of insulin when he remarks that his lips are numb and his hands perspiring	100%	67.5 %	0

HOSPITALS

Nursing Assessment & Intervention

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75 10
84. Use examples with which Karl is familiar in teaching him about his illness and medical regime	100%	54%	0
85. Refrain from scolding Karl for sneaking food, rather express understanding of his feelings and discuss possible adaptive behaviors	100%	67.5%	11.5%
86. Arrange to lunch with Karl and his parents in a restau- outside the hospital for the purpose of aiding in the selection of Karl's diet	100%	33.5%	0
Re Mr. Thomas, age 42, who has been in the Coronary Care unit for one week with a myocardial infarction:			
87. Insure that the activity and noise levels remain low in Mr. Thomas' room	100%	89.5%	55.8%
88. Refrain from statements such as "You'll be up and about in no time." when Mr. Thomas asks whether he is ever going to be well again	98%	91%	55.5%
89. Notice Mr. Thomas, who is supposed to be on bedrest, attempting to get out of bed..	98%	91%	73.3%
90. Say something like "It must be very frustrating to be stuck in bed." when Mr. Thomas makes sarcastic remarks	96%	91.5%	37.3%

HOSPITALS

Nursing Assessment & Intervention

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75 1
91. Observe that though Mr. Thomas has been lying quietly in bed, his posture is rigid and his expression tense	98%	81.5%	29.5%
92. Elevate the head of his bed and initiate oxygen therapy immediately when Mr. Thomas complains of dyspnea	100%	72.5%	6.5%
93. Observe that Mr. Thomas has not questioned the doctor regarding his illness even though he has expressed concern to the nurse	100%	55%	6.5%
94. Provide opportunities for Mr. & Mrs. Thomas to talk in relative privacy	100%	73%	23.8%

NURSING HOMES

F. Nursing Assessment & Intervention

TASKS	RN	LPN	HEALTH ASSISTANTS
%	25 50 75 100	25 50 75 100	25 50 75 10
Re Mary, age 80, who has been admitted to your institution after having been hospitalized with a CVA and subsequently having a tracheostomy to maintain her airway.			
58. Have present and operational at the bedside a suction machine and tracheostomy care tray upon Mary's arrival.....	100%	96.5%	11.5%
59. Suction Mary's tracheostomy after noticing her to be unusually restless, even though no gurgling is heard.	100%	77%	0
60. Encourage her to place a finger over the tube opening in order to help her express herself verbally...	96%	90.5%	69%
61. Organize her activities to assure her she will be taken care of as well as she was when hospitalized....	100%	89.5%	63.2%
62. Notice secretions bubbling in the tracheostomy upon entering Mary's room.....	100%	96.5%	80.2%
Re Frank, age 72, admitted to your institution with a history of diabetes mellitus:			
63. Determine Frank's level of knowledge concerning his disease, diet and medication.....	100%	75.5%	14%

NURSING HOMES

Nursing Assessment & Intervention

TASKS	RN %	LPN %	HEALTH ASSISTANTS %
64. Recognize steps to be taken upon noting an acetone odor while assisting Frank with his bath.....	96%	85.5%	44%
65. Delay giving Frank a scheduled dose of insulin when he remarks that his lips are numb and his hands perspiring	96%	70%	0
66. Check his feet for signs of irritation such as blisters, cuts, etc.....	96%	96%	88.5%
67. Recognize the significance of Frank's complaining of weakness and dizziness and taking appropriate action...	100%	100%	58.2%
Re John, age 68, admitted to your institution after having been hospitalized with a CVA			
68. Assess John's level of activity and write his care plan.....	100%	79%	6%
69. Provide adequate exercise in order to maintain ranges of motion of all extremities..	100%	96.5%	59.2%
70. Recognize a reddened area on the coccyx area as a potential problem and institute proper treatment.....	96%	96%	62.7%

NURSING HOMES

Nursing Assessment & Intervention

TASKS %	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75
71. Understand the importance of attempting to communicate with John even though he appears not to understand...	96%	96%	88.7%
72. Maintain correct body alignment and pay particular attention to prevention of foot drop.....	96%	96%	94.7%
Re Ronald, age 50, admitted to your institution with the diagnosis of Parkinson's Disease:			
73. Organize Ronald's activities so that a familiar routine is established.....	100%	84%	42.5%
74. Provide appropriate utensils and encourage him to feed himself.....	96%	96%	90.7%
75. Insure that the noise level remains low in Ronald's room.	92.5%	92.5%	91.5%
76. Observe that he is becoming more unsteady on his feet and provide an environment to insure his safety.....	92.5%	92.5%	82%
Re Alice, age 55, admitted to your institution after a below the knee amputation of the left leg:			
77. Notice Alice staring at her artificial leg in the corner of her room.....	92.5%	88%	86.5%
78. Observe that Alice does not want to be taken to the dining room with the other	92.5%	92.5%	88%

NURSING HOMES

Nursing Assessment & Intervention

TASKS	RN %	LPN %	HEALTH ASSISTANTS %
79. Arrange her room so that she can help herself as much as possible.....	98%	95.5%	81.5%
80. Encourage Alice to exercise the amputated limb.....	100%	100%	81.7%
81. Recognize a reddened area on the suture lines as a potential problem and institute proper measures.....	100%	100%	30%
Re Ann, age 78, with atherosclerosis and mild confusion:			
82. Provide a safe environment for Ann.....	98%	92.5%	88%
83. Institute a plan for reality orientation.....	100%	82.5%	19.2%
84. Establish realistic goals and find some tasks that Ann can do which will give her satisfaction.....	96%	84%	29%
85. Observe Ann crying more frequently and hoarding food in her room.....	96%	88%	87%

F. NURSING ASSESSMENT & INTERVENTION

Results

The higher response for expected competencies of the Registered Nurse in this functional area of judgment and appropriate action is to be expected. The data shows no unexpected results.

HOSPITALS

G. Leadership

TASKS	RN %	LPN %	HEALTH ASSISTANTS %
95. Assign patients and tasks taking into account the abilities of each team member.....	100%	13.5%	0
96. Review assigned patients' diagnoses and care with each team member at the beginning and as necessary during each shift	100%	10%	0
97. Listen and change assignments accordingly when a patient complains bitterly about "his nurse"	100%	15%	0
98. Plan her activities so that she will be available to assist team members	100%	35%	14%
99. Set an example and give suggestions while assisting each team member in giving care	100%	27.5%	6.5%
100. Discuss the problem and attempt a satisfactory solution when two team members appear sharp with each other	100%	6.5%	0
101. Comment at a team conference on the success of a team member's suggestion on the patient's care plan.	100%	27.5%	0

HOSPITALS

Leadership

TASKS	%	RN 25 50 75 100	LPN 25 50 75 100	HEALTH ASSISTANTS 25 50 75 10
102. Assist personnel with problem solving in patient care situations		100%	11.5%	5.5%
103. Reassign team members to accomplish tasks by priorities when a team member leaves ill		100%	7.5%	0

NURSING HOMES

G. Leadership

TASKS	RN %	LPN %	HEALTH ASSISTANTS %
86. Assist personnel with problem solving in patient care..	100%	75%	39%
87. Support of the patient and family as death approaches...	100%	96%	68.2%
88. Review patient's care with staff and make judgments concerning h.s. and p.r.n. medications.....	100%	69.5%	0
89. Assign patients and tasks, taking into account the abilities of each person giving nursing care.....	98%	65.5%	0
90. Discuss the problem and attempt a satisfactory solution when two members of the nursing staff are in conflict with each other.....	100%	42.5%	6%
91. Reassign personnel to accomplish tasks by priorities when a member of the staff leaves ill.....	100%	34%	0
92. Set an example and give suggestions while assisting personnel in giving care....	100%	80%	22%
93. Listen and change assignments accordingly when a patient complains about "his nurse"	100%	57%	0
94. Call a patient's family to come in when the patient asks for them.....	100%	64%	0

NURSING HOMES

Leadership

TASKS %	RN 25	RN 50	RN 75	RN 100	LPN 25	LPN 50	LPN 75	LPN 100	HEALTH ASSISTANTS 25	HEALTH ASSISTANTS 50	HEALTH ASSISTANTS 75	HEALTH ASSISTANTS 1
95. Observe a patient's condition and inform the physician of pertinent information by phone.....				100%		53.5%			0			
96. Take phone orders from a physician and transcribe them on the patient's chart.....				100%		43.5%			0			

G. LEADERSHIP

Results

The responses in this category were fairly predictable illustrating the bulk of leadership responsibilities being at the Registered Nurse level. However, in the nursing home setting, much more leadership responsibility was expected of the Licensed Practical Nurse, with the exception of Tasks 90, 91 and 96.

BEST COPY AVAILABLE

SUMMARY

1. The results of this sample indicates that the survey does measure the tasks performed in the area of nursing. A few tasks should have been placed in another category, but their placement did not affect the overall results.

2. The overlapping of competencies expected of the three levels of nursing personnel was expected in some of the categories especially the area of Safety, Comfort and Personal Hygiene. This area is basic to nursing care and thus all levels should be competent to perform these measures with the exception of aseptic technique with sterile supplies.

3. The major areas of difference in expected competencies between Registered Nurses and Licensed Practical Nurses were in relation to starting intravenous infusions, giving intravenous medications, central venous pressure, and leadership tasks. These variations were less in nursing homes, supporting the premise that Licensed Practical Nurses are often given responsibility identical to an Registered Nurse in those settings.

4. The responses on the Health Assistant level showed in many instances that these persons were expected to perform many tasks. For the most part, their education is left to on-the-job training and indications are that specific course work and training are necessary to prepare them for the competencies expected.

BEST COPY AVAILABLE

ARTICULATION OF DATA TO BC^3 NURSING CURRICULUM

The semesters of the curriculum according to the levels of personnel are as follows: First semester - Nurse Aide or Health Assistant certificate; first year - Practical Nurse diploma; second year - Associate Degree in Nursing.

Category A. - SAFETY, COMFORT & PERSONAL HYGIENE MEASURES

All tasks are presented in the first semester so that all three levels could provide these measures.

Category B. - FOOD, FLUID & ELIMINATION MEASURES

All tasks except tube feedings and starting intravenous infusions are presented in the first semester, which is the Health Assistant level. Tube feedings are in the second semester, and starting intravenous infusions are included as a route of administration of medications in the first semester and in the beginning Associate Degree Nurse track.

Category C. - TREATMENTS & PROCEDURES

Insertion of nasogastric tubes is taught to Associate Degree Nurse level students in the summer session. Removal of sutures and skin clips is not included in curriculum content. Tracheostomy care is covered at the first year Licensed Practical Nurse level and again at the Associate Degree Nurse level in more depth, as are tasks with chest tubes. The other tasks are presented in the 2nd semester.

Category D.- DIAGNOSTIC ACTIVITIES

All tasks except central venous pressure and EKG procedures are taught on the Licensed Practical Nurse level.

Category E. - MEDICATIONS

Administration of medications is taught in the first semester therefore, all three levels have been presented the content, even though Health Assistants are not expected to have this competency.

Category F.- NURSING ASSESSMENT & INTERVENTION

The principles behind the assessment required for the tasks in this category are presented in the first year Licensed Practical Nurse level and in more depth in the second year at the Associate Degree Nurse level.

Category G. - LEADERSHIP

Although the tasks in this category are certainly expected of the Registered Nurse level, only the content is presented in the curriculum. At the present time according to the State Board of Nurse Examiners, Associate Degree Nurses are not expected to function as team leaders. Therefore, the actual experience of functioning in a leadership role is not a requirement of the curriculum, but will be offered as an optional learning experience.

Hospital

BEST COPY AVAILABLE

BUTLER
COUNTY
COMMUNITY
COLLEGE

College Drive, Oak Hills, Butler, Pennsylvania 16001 Phone 287-8711

This questionnaire has been prepared to identify skills and competencies required for three levels of nursing personnel. This information will be analyzed to determine if the basic educational program at BC^3 contains the material to produce a competent practitioner at each level.

Please complete the questionnaire by checking (✓) the column of the person you think can or should be capable of performing that particular task. You may check one, two, three or four columns for some of the tasks.

In the spaces below please complete the requested information. You need not sign your name unless you care to do so.

Nursing position _____

Age _____

Basic nursing education _____

Date of graduation from above _____

Highest degree _____

Previous experience in nursing _____

	RN	LPN	NA	ORDERLY
fety, Comfort, and Personal Hygiene				
Explain and use safety measures (e.g., restraints, side rails) in caring for patients.....				
2. Observe and enforce safety and fire regulations (e.g., spilled water, no smoking signs).....				
3. Carry out aseptic technique when using sterile supplies (e.g., syringes, dressings).....				
4. Prevent transferring pathogens between patients (e.g., wash hands, change gowns).....				
5. Give or assist patients to take baths.....				
6. Assist patients with personal hygiene (e.g., hair, nails, skin, teeth).....				
7. Give skin care to bedridden patients (e.g., in casts, restraints, coma).....				
8. Turn and position patients in correct body alignment.....				
9. Use supportive and comfort devices (e.g., bed cradles, footboards).....				
0. Assist patients in range of motion exercises...				
1. Assist patients to become ambulatory (e.g., dangle, get out of bed).....				
ds and Fluids				
ssist patients to eat:				
2. Infant.....				
3. Toddler.....				
4. Child.....				
5. Adult.....				
6. Geriatric patient.....				
7. Administer tube feedings (e.g., nasogastric, gavage, gastrostomy).....				
8. Start intravenous infusion.....				
9. Hang, regulate, and discontinue intravenous fluids.....				

	RN	LPN	NA	ORDERLY
20. Observe, measure, and record food and fluid intake and output (include drainage bottles)				
imination				
21. Assist patients with natural elimination (bedpan, urinal).....				
22. Prepare and give enemas and Colonic irrigations.....				
23. Remove fecal impactions.....				
24. Insert urinary catheters.....				
25. Irrigate urinary catheters.....				
eatments and Procedures				
26. Insert nasogastric tubes.....				
Check and maintain drainage tubing with suction:				
27. Chest tubes.....				
2.. N/G tubes.....				
29. Gastrostomy.....				
30. Irrigate and instill solutions into tubings (e.g., colostomy, drains).....				
31. Irrigate and instill solutions directly into body openings (e.g., douche, wounds).....				
32. Assist patients to turn, cough, and deep breathe				
33. Set up for and assist physician with procedures (e.g., examinations, cut downs, L.P.'s.....				
34. Remove sutures and skin clips.....				
35. Prepare equipment and administer inhalation therapy.....				
36. Assist patients with postural drainage.....				
Care for tracheostomy:				
Suction.....				
38. Remove, clean and replace inner cannula				
39. Set up and operate commonly used O_2 equipment (e.g., nasal catheters, masks, tents, croupettes)				

	RN	LPN	NA	ORDERLY
40. Give mouth-to-mouth resuscitation.....				
semble commonly used orthopedic equipment:				
.. Beds and frames.....				
42. Traction.....				
43. Operate commonly used orthopedic beds and frames				
44. Maintain patients in traction.....				
pply bandages:				
45. Ace.....				
46. Scultetus.....				
47. Pressure.....				
48. Slings.....				
49. Splints.....				
<u>iagnostic Activities</u>				
50. Take TPR and BP.....				
51. Determine central venous pressure.....				
52. Set up and operate EKG equipment.....				
53. Recognize and report abnormalities recorded on monitors, scopes, EKG strips.....				
54. Apply and read skin tests.....				
55. Obtain nose, throat, stool, urine, and wound specimens.....				
est urine for:				
56. Sugar.....				
57. Acetone.....				
58. Specific Gravity.....				
59. pH.....				
<u>edications</u>				
Prepare and administer medications:				
60. Oral.....				
61. Rectal.....				

	RN	LPN	NA	ORDERLY
62. IM.....				
63. Subcutaneous.....				
64. Intradermal.....				
65. Inhaled.....				
66. I.V.				
67. Eye, nose, and ear drops.....				
68. Topical.....				
e Susan, age 2, who has just returned from he operating room with a new tracheostomy:				
69. Have present and operational at the bedside a suction machine and tracheostomy care tray upon Susan's return to her room.....				
70. Recognize that Susan's arms are not restrained as she is admitted to her room after surgery..				
71. Wait until Susan is quiet before rechecking her pulse rate which is 180 while crying.....				
72. Notice secretions bubbling in the tracheostomy upon entering Susan's room.....				
73. Organize care to insure Susan remains in an environment of increased oxygen and humidity as much as possible.....				
74. Suction Susan's tracheostomy after noticing her to be unusually restless, even though no gurgling sound is heard.....				
75. Notice Susan staring at the door in her mother's absence.....				
76. Provide a constant means by which Susan can initiate communication.....				
77. Organize Susan's activities so that a familiar routine similar to home is established.....				
e Karl, age 15, hospitalized as a newly diagnosed iabetic:				
78. Introduce herself to Karl when he is admitted, orient him to the ward, and introduce him to other teen-age patients.....				
79. Recognize steps to be taken upon noting an acetone odor while assisting Karl with his oral hygiene.....				

80. Sit down and listen with interest when Karl complains bitterly that he cannot eat anything that he likes anymore.....

81. Encourage Karl to carry out his care independently, as he is able to accept new responsibilities.....

82. Show Karl how to give his insulin and test his urine.....

83. Delay giving Karl a scheduled dose of insulin when he remarks that his lips are numb and his hands perspiring.....

84. Use examples with which Karl is familiar in teaching him about his illness and medical regime.....

85. Refrain from scolding Karl for sneaking food, rather express understanding of his feelings and discuss possible adaptive behaviors.....

86. Arrange to lunch with Karl and his parents in a restaurant outside the hospital for the purpose of aiding in the selection of Karl's diet.....

Mr. Thomas, age 42, who has been in the Coronary Care Unit for one week with a myocardial infarction:

87. Insure that the activity and noise levels remain low in Mr. Thomas' room.....

88. Refrain from statements such as"You'll be up and about in no time." when Mr. Thomas asks whether he is ever going to be well again....

89. Notice Mr. Thomas, who is supposed to be on bedrest, attempting to get out of bed.....

90. Say something like"It must be very frustrating to be stuck in bed.", when Mr. Thomas makes sarcastic remarks.....

91. Observe that though Mr. Thomas has been lying quietly in bed, his posture is rigid and his expression tense.....

92. Elevate the head of his bed and initiate oxygen therapy immediately when Mr. Thomas complains of dyspnea.....

93. Observe that Mr. Thomas has not questioned the doctor regarding his illness even though he has expressed concern to the nurse.....

	RN	LPN	NA	ORDERL
94. Provide opportunities for Mr. and Mrs. Thomas to talk in relative privacy.....				
Assign patients and tasks taking into account the abilities of each team member.....				
96. Review assigned patients' diagnoses and care with each team member at the beginning and as necessary during each shift.....				
97. Listen and change assignments accordingly when a patient complains bitterly about "his nurse"..				
98. Plan her activities so that she will be available to assist team members.....				
99. Set an example and give suggestions while assisting each team member in giving care.....				
100. Discuss the problem and attempt a satisfactory solution when two team members appear sharp with each other.....				
101. Comment at a team conference on the success of a team member's suggestion and have this member enter the suggestion on the patient's care plan.				
102. Assist personnel with problem solving in patient care situations.....				
103. Reassign team members to accomplish tasks by priorities when a team member leaves ill.....				

Thank you for

assisting with our research project

	RN	LPN	NA	ORDERLY
Safety, Comfort, and Personal Hygiene				
1. Explain and use safety measures (e.g., restraints, side rails) in caring for patients.....				
2. Observe and enforce safety and fire regulations (e.g., spilled water, no smoking signs).....				
3. Carry out aseptic technique when using sterile supplies (e.g., syringes, dressings).....				
4. Prevent transferring pathogens between patients (e.g., wash hands, change gowns).....				
5. Give or assist patients to take baths.....				
6. Assist patients with personal hygiene(e.g., hair nails, skin, teeth).....				
7. Give skin care to bedridden patients (e.g., in casts, restraints, coma).....				
8. Turn and position patients in correct body alignment.....				
9. Use supportive and comfort devices (e.g., bed cradles, footboards).....				
10. Assist patients in range of motion exercises...				
11. Assist patients to become ambulatory (e.g., dangle, get out of bed).....				
12. Assist a patient in the use of crutches, walker etc.				
Foods and Fluids				
13. Assist patients to eat.....				
14. Administer tube feedings (e.g., nasogastric, gavage, gastrostomy).....				
15. Start intravenous infusion.....				
16. Hang, regulate, and discontinue intravenous fluids.....				
17. Observe, measure, and record food and fluid intake and output (include drainage bottles)....				
Elimination				
18. Assist patients with natural elimination (bedpan, urinal).....				

	RN	LPN	NA	ORDERLY
19. Prepare and give enemas and colonic irrigations.....				
20. Remove fecal impactions.....				
21. Insert urinary catheters.....				
22. Irrigate urinary catheters.....				
Treatments and Procedures				
23. Insert nasogastric tubes.....				
Check and maintain drainage tubing with suction:				
24. N/G tubes.....				
25. Irrigate and instill solutions into tubings (e.g., colostomy, drains).....				
26. Irrigate and instill solutions directly into body openings (e.g., douche, wounds).....				
27. Assist patients to turn, cough, and deep breathe.....				
Care for tracheostomy:				
28. Suction.....				
29. Remove, clean and replace inner cannula.....				
30. Set up and operate commonly used O_2 equipment (e.g., nasal catheters, masks, tents)				
31. Give mouth-to-mouth resuscitation.....				
Assemble commonly used orthopedic equipment:				
32. Beds and frames.....				
33. Traction.....				
34. Operate commonly used orthopedic beds and frames				
35. Maintain patients in traction.....				
Apply bandages:				
36. Ace.....				
37. Scultetus.....				
38. Pressure.....				
39. Slings.....				
40. Splints.....				

	RN	LPN	NA	ORDERLY
Diagnostic Activities				
41. Take TPR and BP.....				
42. Set up and operate EKG equipment.....				
43. Apply and read skin tests.....				
44. Obtain nose, throat, stool, urine, and wound specimens.....				
Test urine for:				
45. Sugar.....				
46. Acetone.....				
47. Specific Gravity.....				
48. pH.....				
Medications				
Prepare and administer medications:				
49. Oral.....				
50. Rectal.....				
51. IM.....				
52. Subcutaneous.....				
53. Intradermal.....				
54. Inhaled.....				
55. I.V.				
56. Eye, nose, and ear drops.....				
57. Topical.....				
Re Mary, age 80, who has been admitted to your institution after having been hospitalized with a CVA and subsequently having a tracheostomy to maintain her airway:				
58. Have present and operational at the bedside a suction machine and tracheostomy care tray upon Mary's arrival.....				
59. Suction Mary's tracheostomy after noticing her to be unusually restless, even though no gurgling is heard.....				
60. Encourage her to place a finger over the tube opening in order to help her express herself verbally.....				

	RN	LPN	'NA	ORDERLY
61. Organize her activities to assure her she will be taken care of as well as she was when hospitalized.....				
62. Notice secretions bubbling in the tracheostomy upon entering Mary's room.....				
Re Frank, age 72, admitted to your institution with a history of diabetes mellitus:				
63. Determine Frank's level of knowledge concerning his disease, diet and medication.....				
64. Recognize steps to be taken upon noting an acetone odor while assisting Frank with his bath.....				
65. Delay giving Frank a scheduled dose of insulin when he remarks that his lips are numb and his hands perspiring.....				
66. Check his feet for signs of irritation such as blisters, cuts, etc.....				
67. Recognize the significance of Frank's complaining of weakness and dizziness and taking appropriate action.....				
Re John, age 68, admitted to your institution after having been hospitalized with a CVA				
68. Assess John's level of activity and write his care plan.....				
69. Provide adequate exercise in order to maintain ranges of motion of all extremities.....				
70. Recognize a reddened area on the coccyx area as a potential problem and institute proper treatment.....				
71. Understand the importance of attempting to communicate with John even though he appears not to understand.....				
72. Maintain correct body alignment and pay particular attention to prevention of foot drop...				
Re Ronald, age 50, admitted to your institution with the diagnosis of Parkinson's Disease:				
73. Organize Ronald's activities so that a familiar routine is established.....				
74. Provide appropriate utensils and encourage him to feed himself.....				

	RN	LPN	NA	ORDE
75. Insure that the noise level remains low in Ronald's room.....				
76. Observe that he is becoming more unsteady on his feet and provide an environment to insure his safety.....				
Re Alice, age 55, admitted to your institution after a below the knee amputation of the left leg:				
77. Notice Alice staring at her artificial leg in the corner of her room.....				
78. Observe that Alice does not want to be taken to the dining room with the other patients.....				
79. Arrange her room so that she can help herself as much as possible.....				
80. Encourage Alice to exercise the amputated limb..				
81 Recognize a reddened area on the suture lines as a potential problem and institute proper measures.....				
Re Ann, age 78, with atherosclerosis and mild confusion:				
82. Provide a safe environment for Ann.....				
83. Institute a plan for reality orientation.....				
84. Establish realistic goals and find some tasks that Ann can do which will give her satisfaction....				
85. Observe Ann crying more frequently and hoarding food in her room.....				
Leadership activities				
86. Assist personnel with problem solving in patient care.....				
87. Support of the patient and family as death approaches.....				
88. Review patient's care with staff and make judgments concerning h.s. and p.r.n. medications..				
89. Assign patients and tasks, taking into account the abilities of each person giving nursing care..				
90. Discuss the problem and attempt a satisfactory solution when two members of the nursing staff are in conflict with each other....				

	RN	LPN	NA	ORDERLY
91. Reassign personnel to accomplish tasks by priorities when a member of the staff leaves ill.....				
92. Set an example and give suggestions while assisting personnel in giving care.....				
93. Listen and change assignments accordingly when a patient complains about "his nurse"...				
94. Call a patient's family to come in when the patient asks for them.....				
95. Observe a patient's condition and inform the physician of pertinent information by phone....				
96. Take phone orders from a physician and transcribe them on the patient's chart....				

Thank you for assisting with our research project.

We would appreciate the following information in addition to the questionnaire.

Bed capacity -

Level of care -

Skilled

Intermediate

Ambulatory

Staff:

R.N.'s -

L.P.N.'s -

Aides -

Orderlies -

Is there any differentiation between aides and orderlies as to wages and responsibilities?

Do the L.P.N.'s take a pharmacology course prior to administering medication in your institution?

If possible, please have the following persons complete the questionnaire:

Charge Nurse
Staff Nurses:
R.N.
L.P.N.

Thank you,

Karen Dambach
Coordinator, Nursing & Auxiliary
Nursing Articulation Project

QUESTIONNAIRE **BEST COPY AVAILABLE**

Current nursing practice demands much greater knowledge and understanding on the part of all practitioners than can be provided in any introductory learning sequence. Present knowledge and capability are sure indicators that future nursing roles will be more complex and demanding. Therefore, plans are being formulated to provide continuing education for nurses and will be part of the continuing education program at Butler County Community College. Some courses may be tentatively scheduled for fall of 1976.

In order to plan systematically a program which will best meet your needs, please indicate with a check your areas of interest. Please feel free to include any areas of interest in addition to those topics listed below:

_____ Nursing Process

_____ Problem Oriented Medical Records and Audit

_____ Management by Objectives

_____ Interviewing and Counseling Nursing Personnel

_____ Fluid and Electrolyte Balance

_____ Assessment and Intervention for Neurological Problems

_____ Methods of Nursing Care

_____ Pharmacodynamics

_____ Disturbances of Homeostasis due to Oxygen Deprivation I. Pulmonary

_____ Disturbances of Homeostasis due to Oxygen Deprivation II. Cardiac

_____ Activity and Mobility Problems

_____ Basic Patient Assessment

_____ Concepts of Geriatric Nursing

_____ Other (please specify)

Name _____

Address _____

_____

Place of Employment _____

Return to:

Mrs. Karen Dambach
Nursing Research Project
Butler County Community College
College Drive, Oak Hills
Butler, PA 16001

COMPUTER ASSISTED BASIC ARITHMETIC

Nursing students entering the Butler County Community College at both the Practical Nursing and the Associate Degree Nursing program levels have demonstrated a deficiency in basic arithmetic. Their deficiencies may be in selected or all topical areas. These deficiencies inhibit their normal progress through the program.

A remedial course in basic arithmetic has been designed for the student directed to developing skills in each of the four required areas, addition, subtraction, multiplication and division as they apply to whole numbers, decimals and fractions. In addition, considerable emphasis has been placed on statement problems to encourage the development of analytical skill.

The nature of such a course and the varied background of the student encouraged the use of the computer as a support in dealing with the individual differences of these students.

We are using the DEC PDP/8I at the college with five teletypes. The program support works in two ways: to support the individual student on each of the teletypes or to assist the individual teachers.

The student may go to the teletype, answer questions on the computer that will identify the kind of skill the student needs to develop, then do a series of exercises the computer selects based on student information. The computer gives the student immediate feedback concerning the accuracy with which he is exhibiting his skill.

As an asset to the instructor the uses are varied and essentially serve four functions: overall diagnostic testing, testing in specific identified skills, developing work exercises in specific skill areas, and providing answer keys to each of the above. Other applications are as varied as the instructor's imagination will allow.

Even though those skill objectives identified by an instructor for the computer may be identical on two sequential occasions, the exercises or tests generated by the computer will never be identical. This makes it possible for the instructor to test several students on any time schedule on the same topic without using the same tests.

If an instructor wants to do group testing such as diagnostic testing or post testing, he may use that which the computer has generated as a master and Xerox the student tests for their response.

Currently there are eighteen nursing students testing the program. Based on their evaluation and progress the system will be reviewed. If the system is as successful as preliminary studies indicate, we hope to expand the system to other programs at the college.

A copy of the documentation, programs, and examples of several tests are included with this report.

DOCUMENTATION FOR COMPUTER GENERATED ARITHMETIC TESTS

Programs in this series are:

NEWFIL
QUEST2
QUEST3
QUEST4
ANSKEY

All programs run from EduSystem 25 BASIC (Language). No program requires more than 11 blocks of scratch area to run. All programs are located on the OS/8 Systems tape CGT Arithmetic #4050. All programs are called into use by the command OLD$.

NEWFIL is a program used to create new question files.

Procedure:

1. Type RUN (Return)
2. Supply the following input:
   a. Name of the file being created.
   b. Total number of questions in the file.
3. Each question must be proceded by a line of data items consisting of subroutine number and three answer key items.
4. At the end of the question type ↑ in response to the next ?.
5. Computer will respond with OK??
   Type any character and RETURN key to have question stored in file. Type NO and RETURN key to repeat question.

QUEST2 will print every question in a file sequentially for debugging purposes. The only input is question file name.

QUEST3 and QUEST4 are identical except for answer generating subroutines. Therefore QUEST3 must be used with UNIT1, UNIT2,UNIT3,UNIT4. QUEST4 must be used with UNIT5, UNIT6, and UNIT7.

Procedure:

1. Type Run (Return)
2. Both QUEST3 and QUEST4 have a fixed length input queue of 5. RETURN key must be typed enough times to fill this queue.
3. Typing YES in response to the DECIMALS? question will cause the computer to generate decimal values in all appropriate spots in every file in the input queue.

ANSKEY is used to print answer keys. Input is variable length queue of answer key file names. Type RETURN key to terminate queue. Answer keys will be printed one after the other. KILL command may be used after answer keys have been printed to delete them from Dectape.

```
OLD
NAME--ANSKEY

READY
LIST

  10 REM - ANSKEY - ROUTINE TO READ & PRINT ANSWER KEY FILES.
  15 REM
  20 REM - BUTLER COUNTY COMMUNITY COLLEGE ......  PROJECT #6600
  30 REM - CHARLES R. CAMPBELL ..................... JUNE 1976
  35 REM
  40 PRI " LIST ANSWER KEY FILE NAMES"
  45 FOR L= 1 TO 20 \INP A$[L]\ IF A$[L]="" THE 50\NEX L
  50 FOR K=1 TO L-1
  53 PRI "------------------------------------------------------------"
  55 PRI\PRI\PRI\PRI TAB(35);"KEY ....... ";A$[K]\PRI\PRI\PRI
  60 OPEN A$[K] FOR INPUT
  70 INP# ,N
  80 FOR I=1 TO N
  90 INP# ,A,A$,B,B$,C
  91 IF C=0 THE A$="/"
  92 IF A>=0 THE 100
  93 PRI I;".";
  94 IF A=-1 THE PRI "YES"
  95 IF A=-2 THE PRI "NO"
  96 IF A=-3 THE PRI "?"
  97 GOT 150
 100 PRI I;".";A;
 110 IF B=0 THE 150
 120 PRI A$;B;
 130 IF C=0 THE 150
 140 PRI B$;C;
 150 PRI \NEX I
 155 PRI\PRI\PRI\PRI\PRI
 160 PRI "------------------------------------------------------------"
 170 NEX K
 200 END

READY
```

```
LIS

 10 'QUEST4 - PROGRAM TO RANDOMLY SELECT QUESTIONS
 15 '          FROM UP TO 5 INPUT FILES
 20 'BUTLER COUNTY COMMUNITY COLLEGE ...... PROJECT # 6600
 25 'CHARLES R. CAMPBELL ................... JUNE 1976
 35 RAN\D=0
 40 PRI "TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY"
 45 INP F$[1],F$[2],F$[3],F$[4],F$[5]
 46 PRI "DECIMALS"\INP Z$
 50 PRI "TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE"
 60 FOR I1=1 TO 5\IF F$[I1]="" THE 63\NEX I1
 63 I1=I1-1\T=1
 65 FOR L1= 1 TO I1\INP F[L1]\NEX L1
 66 PRI "TYPE IN ANSWER KEY FILE NAME"\INP S$
 67 FOR I=1 TO 72\PRI "-";\NEX I
 68 PRI\PRI\PRI\PRI TAB(30);"EXAM"\PRI TAB(25);"ANSKEY...";S$\PRI\PRI
 69 FOR L1= 1 TO I1
 70 OPEN$ F$[L1] FOR INPUT
 80 INP# ,Z
 90 FOR I=1 TO F[L1]\M[I]=INT(Z/F[L1]*RND(0))+(I-1)*INT(Z/F[L1])+1
100 NEX I
105 C1=1
110 FOR I=1 TO F[L1]\PRI\PRI\PRI T".";\T=T+1
115 FOR K1=1 TO 10\W$[K1,1]=" "\W$[K1,2]=" "\NEX K1
120 INP# ,N1,X1,X2,X3,X4
125 N2=0
130 FOR K=1 TO N1
140 INP# ,A$[K,1],A$[K,2],A$[K,3],A$[K,4],A$[K,5],A$[K,6]
150 INP# ,A$[K,7],A$[K,8],A$[K,9],A$[K,10],A$[K,11],A$[K,12]
155 NEX K
160 IF C1=M(I) THE 175
170 C1=C1+1\GOT 120
175 C2=1\C1=C1+1
180 FOR K=1 TO N1
190 FOR J=1 TO 12
200 FOR L=1 TO 6
205 IF MID(A$[K,J],L,1)<>"]" THE 210
206 F1=1\GO T 215
210 IF MID(A$[K,J],L,1)<> "[" THE 350
215 V=0
220 IF L<>1 THE 240
230 G$=A$[K,J]\GOT 260
240 D$=MID(A$[K,J],1,L-1)\PRI D$;
250 G$=CAT(MID(A$[K,J],L,7-L),MID(A$[K,J+1],1,L-1))
260 FOR P=2 TO 6
270 C$=MID(G$,P,1)
280 IF C$="0" THE C=0\IF C$="1" THE C=1\IF C$="2" THE C=2
290 IF C$="3" THE C=3\IF C$="4" THE C=4\IF C$="5" THE C=5
300 IF C$="6" THE C=6\IF C$="7" THE C=7\IF C$="8" THE C=8
310 IF C$="9" THE C=9
315 V=C*10↑(6-P) + V
320 NEX P
321 D1=0\IF F1=1 THE 325
```

```
321 D1=0\IF F1=1 THE 325
322 IF Z$<> "YES" THE 325
323 D1=INT(3*RND(0))+1\D1=INT(10↑D1*RND(0))/10↑D1
325 R=INT(V*RND(0))+V+D1\PRI R;\F1=0
326 ON X1-11 GOS 470,485,500,520,540,560,580,700,720,780,790,810
327 IF X1=4 THE GOS 840
330 IF L=1 THE 365
340 D$=MID(A$[K,J+1],L,7-L)
345 PRI D$;\J=J+1\GOT 365
350 NEX L
360 PRI A$[K,J];
365 NEX J
370 PRI\PRI "   ";\NEX K
380 W[T-1,1]=X2\W[T-1,2]=X3\W[T-1,3]=X4
385 W$[T-1,1]=X$\W$[T-1,2]=Y$
390 NEX I
400 NEX L1
410 OPEN S$ FOR OUTPUT ,5
412 PRI# ,T-1
415 FOR I=1 TO T-1
420 PRI# ,W[I,1],W$[I,1],W[I,2],W$[I,2],W[I,3]
430 NEX I
440 CLOSE
450 STOP
460 REM - ORDER OF OPERATION SUBROUTINES
470 REM   A*B+C
475 ON C2 GOTO 476,478,480
476 X5=R\C2=C2+1\RET
478 X6=R\C2=C2+1\RET
480 X2=X5*X6+R\RET
485 REM   A*B+C*D
490 ON C2 GOTO 492,494,496,498
492 X5=R\C2=C2+1\RET
494 X6=R\C2=C2+1\RET
496 X7=R\C2=C2+1\RET
498 X2=X5*X6+X7*R\RET
500 REM   A-B*C
510 ON C2 GOTO 512,514,516
512 X5=R\C2=C2+1\RET
514 X6=R\C2=C2+1\RET
516 X2=X5-X6*R\RET
520 REM   A*B-C*D
530 ON C2 GOTO 532,534,536,538
532 X5=R\C2=C2+1\RET
534 X6=R\C2=C2+1\RET
536 X7=R\C2=C2+1\RET
538 X2=X5*X6-X7*R\RET
540 REM   A(B+C)
550 ON C2 GOTO 552,554,556
552 X5=R\C2=C2+1\RET
554 X6=R\C2=C2+1\RET
556 X2=X5*(X6+R)\RET
560 REM   A+B(C+D)
570 ON C2 GOTO 572,574,576,578
572 X5=R\C2=C2+1\RET
574 X6=R\C2=C2+1\RET
576 X7=R\C2=C2+1\RET
578 X2=X5+X6*(X7+R)\RET
580 REM   A[B+C(D-E)-F]
590 ON C2 GOT 592,594,596,598,600,602
```

```
592 X5=R\C2=C2+1\RET
594 X6=R\C2=C2+1\RET
596 X7=R\C2=C2+1\RET
598 X8=R\C2=C2+1\RET
600 X9=R\C2=C2+1\RET
602 X2=X5*(X6+X7*(X8-X9)-R)\RET
700 REM   A-B(C-D)
710 ON C2 GOT 712,714,716,718
712 X5=R\C2=C2+1\RET
714 X6=R\C2=C2+1\RET
716 X7=R\C2=C2+1\RET
718 X2=X5-X6*(X7-R)\RET
720 REM   A+B*C
730 ON C2 GOT 732,734,736
732 X5=R\C2=C2+1\RET
734 X6=R\C2=C2+1\RET
736 X2=X5+X6*R\RET
780 REM - CONVERSIONS
785 X2=X2*R\RET
790 REM - FARENHEIT TO CENTIGRADE
800 X2=.5555556*(R-32)\RET
810 REM - CENTIGRADE TO FARENHEIT
820 X2=1.8*R+32\RET
840 REM - AVERAGE
850 N2=N2+R\C2=C2+1\X2=N2/C2\RET
900 END

READY
```

```
READY

 10 'QUEST3 - PROGRAM TO RANDOMLY SELECT QUESTIONS
 15 '          FROM UP TO 5 INPUT FILES
 20 'CHARLES R. CAMPBELL PROJECT #0000
 25 'BUTLER COUNTY COMMUNITY COLLEGE
 35 RAN
 40 PRI "TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY"
 45 INP F$[1],F$[2],F$[3],F$[4],F$[5]
 46 PRI "DECIMALS";\INP Z$
 50 PRI "TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE"
 60 FOR I1=1 TO 5\IF F$[I1]="" THE 63\NEX I1
 63 I1=I1-1\T=1
 65 FOR L1= 1 TO I1\INP F[L1]\NEX L1
 66 PRI "TYPE IN ANSWER KEY FILE NAME"\INP S$
 67 FOR I=1 TO 72\PRI "-";\NEX I
 68 PRI\PRI\PRI\PRI TAB(30);"EXAM"\PRI TAB(25);"ANSKEY...";S$\PRI\PRI
 69 FOR K1=1 TO 10\W$[K1,1]=" "\W$[K1,2]=" "\NEX K1
 70 FOR L1=1 TO I1
 75 OPEN$ F$[L1] FOR INPUT
 80 INP# ,Z
 90 FOR I=1 TO F[L1]\M[I]=INT(Z/F[L1]*RND(0))+(I-1)*INT(Z/F[L1])+1
100 NEX I
105 C1=1
110 FOR I=1 TO F[L1]\PRI\PRI\PRI T".";\T=T+1
120 INP# ,N1,X1,X2,X3,X4
125 N2=0
130 FOR K=1 TO N1
140 INP# ,A$[K,1],A$[K,2],A$[K,3],A$[K,4],A$[K,5],A$[K,6]
150 INP# ,A$[K,7],A$[K,8],A$[K,9],A$[K,10],A$[K,11],A$[K,12]
155 NEX K
160 IF C1=M(I) THE 175
170 C1=C1+1\GOT 120
175 C2=1\C1=C1+1
180 FOR K=1 TO N1
190 FOR J=1 TO 12
200 FOR L=1 TO 6
205 IF MID(A$[K,J],L,1)<>"]" THE 210
206 F1=1\GOT 215
210 IF MID(A$[K,J],L,1)<> "[" THE 350
215 V=0
220 IF L<>1 THE 240
230 G$=A$[K,J]\GOT 260
240 D$=MID(A$[K,J],1,L-1)\PRI D$;
250 G$=CAT(MID(A$[K,J],L,7-L),MID(A$[K,J+1],1,L-1))
260 FOR P=2 TO 6
270 C$=MID(G$,P,1)
280 IF C$="0" THE C=0\IF C$="1" THE C=1\IF C$="2" THE C=2
290 IF C$="3" THE C=3\IF C$="4" THE C=4\IF C$="5" THE C=5
300 IF C$="6" THE C=6\IF C$="7" THE C=7\IF C$="8" THE C=8
310 IF C$="9" THE C=9
315 V=C*10↑(6-P) + V
320 NEX P
321 D1=0\IF F1=1 THE 325
322 IF Z$<> "YES" THE 325
323 D1=INT(3*RND(0))+1\D1=INT(10↑D1*RND(0))/10↑D1
325 R=INT(V*RND(0))+V\PRI R;\F1=0
326 ON X1 GOS 460,480,520,540,580,620,650,760
330 IF L=1 THE 365
340 D$=MID(A$[K,J+1],L,7-L)
345 PRI D$;\J=J+1\GOT 365
```

```
350 ON X1-8 GOS 780,800,820
355 NEX L
360 PRI A$[K,J];
365 NEX J
370 PRI\PRI "   ";\NEX K
380 W[T-1,1]=X2\W[T-1,2]=X3\W[T-1,3]=X4
385 W$[T-1,1]=X$\W$[T-1,2]=Y$
390 NEX I
400 NEX L1
410 OPEN S$ FOR OUTPUT ,5
412 PRI# ,T-1
415 FOR I=1 TO T-1
420 PRI# ,W[I,1],W$[I,1],W[I,2],W$[I,2],W[I,3]
430 NEX I
440 CLOSE
450 STOP
460 REM-ADDITIØN
470 X2=X2+R\RET
480 REM-SUBTRACTION
490 IF C2>1 THE 510
500 X2=R\C2=C2+1\RET
510 X2=ABS(X2-R)\RET
520 REM-MULT
522 IF C2>1 THE 530
525 X2=R\C2=C2+1\RET
530 X2=R*X2\C2=C2+1\RET
540 REM-AVERAGE
550 N2=N2+R\C2=C2+1\X2=N2/C2\RET
560 X=R\C2=C2+1\RET
570 X=X↑R\RET
580 REM-DIVISION
590 IF C2>1 THE 610
600 X2=R\C2=C2+1\RET
610 X2=X2/R\RET
620 IF C2>1 THE 640
630 X2=R\C2=C2+1\RET
640 X2=R/X2\RET
650 REM -% PROBLEMS
660 ON X2 GOT670,700,730
670 IF C2>1 THE 690
680 X=.01*R\C2=C2+1\RET
690 X2=X*R\RET
700 IF C2>1 THE 750
710 X=R\C2=C2+1\RET
720 X2=100*X/R\RET
730 IF C2>1 THE 750
740 X=R\C2=C2+1\RET
750 X2=X/(.01*R)\RET
760 REM -% TO DECIMAL
770 X2=R*.01\RET
780 REM - ANS IN QUEST (MIXED #)
790 Y$="/"\RET
800 REM - ANS IN QUEST(SEPERATE #'S WITH ;)
810 X$=";"\Y$=";"\RET
820 REM - YES OR NO
830 IF X2=1 THE X2=-1\IF X2=0 THE X2=-2\IF X4=1 THE X2=-3\RET
900 END
```

```
350 ON X1-8 GOS 780,800,820
355 NEX L
360 PRI A$[K,J];
365 NEX J
370 PRI\PRI "   ";\NEX K
380 W[T-1,1]=X2\W[T-1,2]=X3\W[T-1,3]=X4
385 W$[T-1,1]=X$\W$[T-1,2]=Y$
390 NEX I
400 NEX L1
410 OPEN S$ FOR OUTPUT ,5
412 PRI# ,T-1
415 FOR I=1 TO T-1
420 PRI# ,W[I,1],W$[I,1],W[I,2],W$[I,2],W[I,3]
430 NEX I
440 CLOSE
450 STOP
460 REM-ADDITIØN
470 X2=X2+R\RET
480 REM-SUBTRACTION
490 IF C2>1 THE 510
500 X2=R\C2=C2+1\RET
510 X2=ABS(X2-R)\RET
520 REM-MULT
522 IF C2>1 THE 530
525 X2=R\C2=C2+1\RET
530 X2=R*X2\C2=C2+1\RET
540 REM-AVERAGE
550 N2=N2+R\C2=C2+1\X2=N2/C2\RET
560 X=R\C2=C2+1\RET
570 X=X↑R\RET
580 REM-DIVISION
590 IF C2>1 THE 610
600 X2=R\C2=C2+1\RET
610 X2=X2/R\RET
620 IF C2>1 THE 640
630 X2=R\C2=C2+1\RET
640 X2=R/X2\RET
650 REM -% PROBLEMS
660 ON X2 GOT670,700,730
670 IF C2>1 THE 690
680 X=.01*R\C2=C2+1\RET
690 X2=X*R\RET
700 IF C2>1 THE 750
710 X=R\C2=C2+1\RET
720 X2=100*X/R\RET
730 IF C2>1 THE 750
740 X=R\C2=C2+1\RET
750 X2=X/(.01*R)\RET
760 REM -% TO DECIMAL
770 X2=R*.01\RET
780 REM - ANS IN QUEST (MIXED #)
790 Y$="/"\RET
800 REM - ANS IN QUEST(SEPERATE #'S WITH ;)
```

```
READY
OLD
NAME--QUEST2
LIST

READY

  10 REM - QUEST2 - SECOND PROGRAM TO GENERATE QUESTIONS
  20 REM - CAN BE USED TO TEST ANY QUESTION FILE BY
  30 REM - SELECTING QUESTIONS CONSECUTIVELY
  35 RAN
  40 PRI "INPUT QUESTION FILE NAME"\INP B$
  50 OPEN$ B$ FOR INPUT
  60 INP# ,N
  65 FOR I=1 TO N
  67 PRI\PRI\PRI
  70 INP# ,N1,X1,X2,X3,X4
  80 FOR K=1 TO N1
  90 INP# ,A$[K,1],A$[K,2],A$[K,3],A$[K,4],A$[K,5],A$[K,6]
 100 INP# ,A$[K,7],A$[K,8],A$[K,9],A$[K,10],A$[K,11],A$[K,12]
 110 NEX K
 120 FOR K=1 TO N1
 130 FOR J=1 TO 12
 140 FOR L=1 TO6
 145 IF MID(A$[K,J],L,1)<>"]"THE 150
 146 F1=1\GOT 152
 150 IF MID(A$[K,J],L,1)<> "[" THEN 270
 152 V=0
 153 IF L<>1 THE 155
 154 G$=A$[K,J]\GOT 170
 155 D$=MID(A$[K,J],1,L-1)\PRI D$;
 160 G$=CAT(MID(A$[K,J],L,7-L),MID(A$[K,J+1],1,L-1))
 170 FOR P=2 TO 6
 180 C$=MID(G$,P,1)
 190 IF C$="0" THE C=0\IF C$="1" THE C=1\IF C$="2" THE C=2
 200 IF C$="3" THE C=3\IF C$="4" THE C=4\IF C$="5" THE C=5
 210 IF C$="6" THE C= 6\IF C$="7" THE C=7\IF C$="8" THE C=8
 220 IF C$="9" THE C=9
 225 V=C*10↑(6-P) + V
 230 NEX P
 240 R=INT(V*RND(0))+V\PRI R;
 245 IF L=1 THE 290
 250 D$=MID(A$[K,J+1],L,7-L)
 260 PRI D$;\J=J+1\GOT 290
 270 NEX L
 280 PRI A$[K,J];
 290 NEX J
 300 PRI
 310 NEX K
 320 NEX I

READY
```

```
LIST

  10 REM-NEWFIL-CREATES QUESTION FILES FOR COMPUTER GENERATED
  15 REM - TESTING. FILES CREATED BY NEWFIL MAY BE EDITED USING EDIT.
  17 REM - SEVERAL FILES CREATED BY NEWFIL MAY BE MERGED USING PIP
  20 REM - TO CREATE A LARGER FILE.
  21 REM
  22 REM - BUTLER COUNTY COMMUNITY COLLEGE ...... PROJECT #6600
  25 REM - CHARLES R. CAMPBELL ................... JUNE 1976
  27 REM
  30 PRI "INPUT QUESTION FILE NAME";\INP B$
  40 PRI "INPUT NUMBER OF QUESTIONS IN FILE";\INP K
  45 OPEN B$ FOR OUTPUT ,64\PRI# ,K
  47 FOR P=1 TO K
  50 FOR I=1 TO 8\FOR J=1 TO 12
  60 A$[I,J]=" "\NEX J
  70 NEX I
  75 N=1
  78 INP X1,X2,X3,X4
  80 FOR I= 1 TO 12\C$[I]=" "\NEX I
  83 LIN C$
  85 IF C$[1]="^" THE 110
  90 FOR J=1 TO 12\A$[N,J]=C$[J]\NEX J
 100 N=N+1\GOT 80
 110 INP "OK?"R$\IF R$<>"NO" THE 130
 120 PRI "RETYPE QUESTION"\GOT 50
 130 PRI# ,N-1,X1,X2,X3,X4
 140 FOR I=1 TO N-1
 150 PRI# ,A$[I,1],A$[I,2],A$[I,3],A$[I,4],A$[I,5],A$[I,6]
 160 PRI# ,A$[I,7],A$[I,8],A$[I,9],A$[I,10],A$[I,11],A$[I,12]
 170 NEX I
 180 NEX P
 190 CLOSE
 200 END

READY
```

```
RUN
TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY
? UNIT1
?
?
?
?
DECIMALS? NO
TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE
? 5
TYPE IN ANSWER KEY FILE NAME
? DEMO1
```

EXAM
ANSKEY...DEMO1

1 .MULTIPLY 16462 BY 16523 .

2 .THE SMITHS TRAVELED AT AN AVERAGE RATE OF 46
MPH FOR 9 HOURS. HOW FAR HAVE THEY TRAVELED?

3 .HAROLD PURCHASED 133 TONS OF COAL FOR $ 2085 .
WHAT WAS THE PRICE PER TON?

4 .MULTIPLY 1774 BY 10740 .

5 .FIND: 191503 - 1000 .

READY

```
RUN
TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY
? UNIT2
?
?
?
?
DECIMALS? NO
TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE
? 5
TYPE IN ANSWER KEY FILE NAME
? DEMO2
--------------------------------------------------------------------------------


                                EXAM
                          ANSKEY...DEMO2


 1 .FIND THE LCM OF 36 AND 50.

 2 .IS 2 PRIME?

 3 .IS 170 A PRIME NUMBER?

 4 .IS 333 A PRIME NUMBER?

 5 .IS 2345678 PRIME?

READY
```

```
RUN
TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY
? UNIT3
?
?
?
?
DECIMALS? NO
TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE
? 5
TYPE IN ANSWER KEY FILE NAME
? DEMO3
-----------------------------------------------------------------------------
```

EXAM
ANSKEY...DEMO3

1 .REDUCE TO LOWEST TERMS: 9/30.

2 .SUBTRACT: 5/16 - 1/4 = ?

3 .WHICH IS LARGER 5/7 OR 3/4?

4 .MULTIPLY 3/8 BY 4.

5 .WHICH IS LARGER 5/8 OR 2/3?

READY

```
RUN
TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY
? UNITS
?
?
?
?
DECIMALS
? NO
TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE
? 5
TYPE IN ANSWER KEY FILE NAME
? DEMO5
-----------------------------------------------------------------------------


                          EXAM
                     ANSKEY...DEMO5


 1 .EVALUATE: 94    +  10    *   5

 2 .EVALUATE: 145    *  164    -   52    *   88

 3 .EVALUATE: 156    *  103    -   80    *   54

 4 .EVALUATE: 6 / 2 * 3 - 1 + 2 * 7

 5 .FIVE MEN HAVE SALARIES OF $ 18046  AND $ 16709  AND $ 17832
   AND $ 16611  AND $ 17929 .  WHAT IS THEIR AVERAGE SALARY?

READY
```

```
RUN
TYPE IN NAMES OF FILES TO BE USED FOLLOWED BY 'RETURN' KEY
? UNIT7
?
?
?
?
DECIMALS
? NO
TYPE IN NO. OF QUESTIONS TO BE SELECTED FROM EACH FILE
? 5
TYPE IN ANSWER KEY FILE NAME
? DEMO7
--------------------------------------------------------------------------------


                                EXAM
                            ANSKEY...DEMO7


 1 .HOW MANY CENTIMETERS ARE THERE IN  8  INCHES?

 2 .HOW MANY SQUARE METERS ARE THERE IN  174  SQUARE FEET?

 3 .HOW MANY CC ARE THERE IN  12  LITERS?

 4 .CONVERT  136  MILES TO KILOMETERS.

 5 .HOW MANY QUARTS ARE THERE IN  17  LITERS?

READY
```

EXAM
ANSKEY...DEMO8

1 .A GROCERY STORE RECEIVES A SHIPMENT CONTAINING 1273 POUNDS OF POTATOES BEFORE OPENING FOR BUSINESS ONE MORNING AND DURING THE DAY MAKES SALES OF 38 POUNDS 115 POUNDS 76 POUNDS 182 POUNDS AND 176 POUNDS. HOW MANY POUNDS OF POTATOES ARE LEFT AT CLOSING TIME?

2 .MULTIPLY 125685 BY 16040 .

3 .DONNA TYPES AT THE RATE OF 41 WORDS PER MINUTE. HER TERM PAPER CONTAINS 3419 WORDS. HOW MANY MINUTES OF ACTUAL TYPING TIME WILL IT TAKE HER TO COMPLETE TYPING THE PAPER IF SHE MAINTAINS HER RATE?

4 .DIVIDE 163475 BY 109999.

5 .FIND THE PRIME FACTORS OF 60.

6 .IS 2 PRIME?

7 .FIND THE LCM OF 21 AND 28.

8 .ALL MULTIPLES OF 4 DIFFER BY .....?

9 .FIND THE LCM OF 357; 629 AND 221.

10 .SUBTRACT: 7/8 - 3/4 = ?

11 .SUBTRACT: 5/16 - 1/4 = ?

12 .WHICH IS LARGER 37/100 OR 24/75?

13 .MULTIPLY: 5/12 * 3/25 = ?

14 .ADD: 5/12 + 7/90 = ?

15 .REDUCE 363/1200 TO LOWEST TERMS.

READY

```
OLD
NAME--ANSKEY

READY
RUN
 LIST ANSWER KEY FILE NAMES
? DEMO1
? DEMO2
? DEMO3
? DEMO4
?
```

KEY DEMO1

```
1 . 2.720016E+8
2 . 414
3 . 16.03846
4 . 1.905276E+7
5 . 190503
```

KEY DEMO2

```
1 . 900
2 . 1
3 .NO

4 .NO

5 .NO
```

KEY DEMO3

154

```
1 . 3 / 10
```

ACCESSION NUMBER: VT103577

PUBLICATION DATE: 30JUN75

TITLE: INDIVIDUALIZED, PERFORMANCE-BASED CURRICULUM AT THE MINNEAPOLIS AREA VOCATIONAL TECHNICAL INSTITUTE. INTERIM REPORT.

PERSONAL AUTHOR: ANDERSON, FLOYD L.; FROKE, CRAIG N.

DESCRIPTOR: INDIVIDUALIZED CURRICULUM; *CURRICULUM DEVELOPMENT; *TASK ANALYSIS; *AREA VOCATIONAL SCHOOLS; INSTRUCTIONAL MATERIALS; *PERFORMANCE BASED EDUCATION; *CURRICULUM PLANNING; *VOCATIONAL EDUCATION; POST SECONDARY EDUCATION; FOOD SERVICE; AUTO MECHANICS; PATTERNMAKING; NEEDLE TRADES

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 114P.; APPENDED MATERIALS MAY NOT REPRODUCE WELL. BEST COPY AVAILABLE.

ABSTRACT: THE 16-PAGE INTERIM REPORT SUMMARIZES THE ACTIVITIES AND ACCOMPLISHMENTS OF THE SECOND YEAR OF A CURRICULUM DEVELOPMENT PROJECT. USING THE ORGANIZATIONAL MODEL DEVELOPED DURING THE PREVIOUS YEAR, CURRICULA WERE TO BE DEVELOPED FOR THE DEPARTMENTS OF THE INSTITUTE BASED ON ACCEPTED CRITERIA FOR EMPLOYMENT IN INDUSTRY. A CURRICULUM SPECIALIST, MEDIA SPECIALIST AIDE, AND PRODUCTION AIDE WERE RESPONSIBLE FOR CURRICULUM DEVELOPMENT UTILIZING INPUT FROM THE INSTRUCTIONAL STAFF. THE OBJECTIVES AND SUBOBJECTIVES AND THE EXTENT TO WHICH EACH HAS BEEN MET ARE LISTED AND DISCUSSED FOR EACH OF THE FOLLOWING DEPARTMENTS: TRANSPORTATION, APPAREL ARTS, FOOD SERVICE, PATTERNMAKING, AND UPHOLSTERY. SAMPLES OF MATERIALS AND INSTRUCTIONAL PACKAGES DEVELOPED IN THE PROJECT ARE CONTAINED IN THE APPENDIXES. THESE INCLUDE: (1) A SAMPLE TASK LISTING BY LEVEL FOR AUTO ELECTRICITY, (2) AN INDIVIDUALIZED LEARNING PACKAGE WITH CORRESPONDING MEDIA PRESENTATION FOR AUTOMATIC TRANSMISSIONS, (3) A PROGRAM MODEL AND TASK ANALYSIS FOR AN AUTO/TRUCK PARTS PROGRAM, (4) A PROGRAM MODEL AND TASK ANALYSIS FOR THE BUS/TRUCK PROGRAM, (5) A PROGRAM MODEL FOR IMPORT/COMPACT AUTO MECHANICS PROGRAM, AND (6) A LISTING OF SUGGESTED FOOD SERVICE COMPETENCIES. (RG)

INSTITUTION NAME: MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INST., MINN.

SPONSORING AGENCY NAME: MINNESOTA STATE DEPT. OF EDUCATION, ST. PAUL. DIV. OF VOCATIONAL AND TECHNICAL EDUCATION; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT 103 577

INTERIM REPORT
3-D-75
Individualized, Performance-Based
Curriculum at the Minneapolis A.V.T.I.
June 30, 1975

VT 103 577

2

INTERIM REPORT

3-D-75

INDIVIDUALIZED, PERFORMANCE-BASED CURRICULUM AT THE MINNEAPOLIS AREA VOCATIONAL TECHNICAL INSTITUTE

Conducted Using Grant Awarded by
Division of Vocational-Technical Education
Minnesota Department of Education
Under Part C/D of Public Law 90-576

Floyd L. Anderson
Minneapolis Area Vocational-Technical Institute
1101 Third Avenue South
Minneapolis, Minnesota 55404

June 30, 1975

Submitted By:
Craig N. Froke,
Curriculum Specialist

CE 009 579
9571
C.1 92

3

TABLE OF CONTENTS

LEA Project Person Submitting Report 1

SEA Person Filing Report 1

Date of Report 1

Period Covered 1

Major Activities and Accomplishments During This Period 1

Significant Findings and Events 13

Problems 13

Dissemination Activities 13

Data Collection 14

Progress on Evaluation Plans and Procedures 14

Other Activities 14

Staff Development 14

Staff Employment and Utilization 15

Future Activities Planned for the Next Reporting Period 15

Appendices

A . . . Task Listing for Auto Electricity 17

B . . . A Sample Individualized Learning Package
With Corresponding Media 26

C . . . Auto Truck Parts Program Model 37

D . . . Auto/Truck Parts Task Analysis 39

E . . . Bus/Truck Program Model 42

F . . . Bus/Truck Mechanics Task Analysis Form 44

G . . . Import/Compact Auto Mechanics Program Model 49

H . . . Import/Compact Auto Mechanics Instructional
Components 51

I . . . A Working Copy of Food Service Competencies 55

4

Appendices (Continued)

J . . . Human Relations Program for 1974-75 69

K . . . New Staff Orientation Program Schedule 76

L . . . Proposed Minneapolis AVTI Organizational Model (Working Copy) 78

M . . . Topical Outline for Secondary Center Teacher Orientation Program 80

N . . . Curriculum References Available in Curriculum Resource Center for Commercial Foods 84

O . . . A Breakdown of Clusters at MAVTI According to Occupations and/or Programs 87

P . . . A Conceptual Model of the Energy and Power Cluster 89

Q . . . Occupation/Space/Course Matrix for the Health Occupations Cluster at Minneapolis AVTI 91

R . . . Partial Educational Specifications for Architectural Drafting at a New Minneapolis AVTI Facility 93

S . . . Sample Class Schedule for Shoe Repair for 1975-76 Indicating the Scheduling of Curriculum Development Time 104

T . . . Memorandum to Staff Regarding Curriculum Development 110

INTERIM REPORT FORM - RESEARCH AND EXEMPLARY PROJECTS

LEA Project Person Submitting Report: Craig N. Froke

SEA Person Filing Report: Bill Stock

Date of Report: June 30, 1975

Period Covered: May 1, 1974 - June 30, 1975

Major Activities and Accomplishments During This Period:

Perhaps the most conclusive method of reporting the activities and accomplishments during this period is the comparison of each objective and sub-objective with the extent of completion shown below and on the following pages.

OBJECTIVES AND SUB-OBJECTIVES
AND THE EXTENT TO WHICH THEY HAVE BEEN MET

OBJECTIVES AND SUB-OBJECTIVES	Extent of Meeting the Objective		
	Fully Met	Partially Met	To Be Met
1. The organizational model for developing new programs and modifying existing programs developed during the first year of the project will be further tested and modified as needed.	X		
Curriculum will be developed based on accepted criteria for employment in industry.		X	
This objective and related sub-objectives is different for each department. Consequently, the objective and sub-objectives will be discussed individually as they pertain to specific departments.			
Transportation Department Auto Mechanics:			
1. Finish industry survey of competencies.	X		
2. List competencies needed by graduates.	X		

OBJECTIVES AND SUB-OBJECTIVES
AND THE EXTENT TO WHICH THEY HAVE BEEN MET

OBJECTIVES AND SUB-OBJECTIVES	Extent of Meeting the Objective		
	Fully Met	Partially Met	To Be Met
3. Write behavioral objectives.		X	
4. Develop, use, evaluate, modify individualized learning packages.		X	
5. Review total progress and re-evaluate programs			X
Auto/Truck Parts, Bus/Truck Mechanics, and Import/Compact Auto Mechanics: New Programs.			
1. Orientation of Staff.	X		
2. Develop Program Model.	X		
3. Analysis of Student and Employer Needs.		X	
4. Identification of Program Content and Structure of Program.	X		
5. Develop Student Competencies.		X	
6. Write Behavioral Objectives		X	
7. Develop, use, evaluate, modify individualized learning packages.			X
APPAREL ARTS DEPARTMENT:			
1. Finish Orientation of Staff.	X		
2. Identify major tasks and competencies needed by program graduates.		X	
3. Complete review of existing materials.		X	
4. Begin collecting curriculum resource materials		X	
5. Meet with Advisory Committee for their input into curriculum design and competencies		X	

OBJECTIVES AND SUB-OBJECTIVES
AND THE EXTENT TO WHICH THEY HAVE BEEN MET

OBJECTIVES AND SUB-OBJECTIVES	Extent of Meeting the Objective		
	Fully Met	Partially Met	To Be Met
6. Survey community apparel arts industries for employer needs and success of recent program graduates.			X
7. Validate competency listing through a survey of local apparel arts industries.			X
8. Finalize competency listing.			X
9. Write behavioral objectives corresponding to finalized competency list.			X
10. Develop, use, evaluate, and modify individualized learning packages.			X
FOOD SERVICE DEPARTMENT:			
1. Complete orientation of Staff.	X		
2. Identify competencies needed by graduating students in the Foods Department.		X	
3. Selection of course structure and organization.	X		
4. Meet with Advisory Committee to enlist their input into curriculum reorganization.	X		
5. Survey community foods industries to ascertain needs of employers.		X	
6. Validate competencies through foods industries survey.		X	
7. Finalize competency list.			X
8. Write behavioral objectives corresponding to competency list.			X
9. Develop, use, evaluate, and modify individualized learning packages.			X

OBJECTIVES AND SUB-OBJECTIVES
AND THE EXTENT TO WHICH THEY HAVE BEEN MET

OBJECTIVES AND SUB-OBJECTIVES	Extent of Meeting the Objective		
	Fully Met	Partially Met	To Be Met
PATTERNMAKING DEPARTMENT:			
1. Complete orientation of Staff.		X	
2. Develop program model.		X	
3. Complete review of course and curriculum materials.			X
4. Identify major tasks and competencies needed by program graduates			X
5. Meet with Advisory Committee to review suggested program model and gain input on identified competencies.			X
6. Conduct survey of local industries to identify employer needs.			X
7. Validate competency listing through survey of local industries.			X
8. Finalize competency listing.			X
9. Write behavioral objectives corresponding to competency/task listings.			X
10. Develop, use, evaluate, and modify individualized learning packages.			X
UPHOLSTERY DEPARTMENT:			
1. Complete orientation of staff	X		
2. Complete development of several instructional packages and related media.		X	
3. Begin development of additional packages and related media.			X
4. Develop program model.			X
5. Complete review of existing course materials			X

OBJECTIVES AND SUB-OBJECTIVES
AND THE EXTENT TO WHICH THEY HAVE BEEN MET

OBJECTIVES AND SUB-OBJECTIVES	Extent of Meeting the Objective		
	Fully Met	Partially Met	To Be Met
6. Identify competencies needed by program graduates.			X
7. Meet with Advisory Committee to validate identified tasks and competencies and provide input on program modifications.			X
8. Write behavioral objectives.			X
9. Develop, use, evaluate, and modify individualized learning packages.			X
3. A release time program for human relations training for all staff will be a continuing part of the project to emphasize the human element of the implementation of competency based curriculum.	X		
4. The new teacher support program developed and tested during the 1973-74 school year shall be continued and modified to increase its effectiveness.		X	
4.1. Teachers new to the Minneapolis Area Vocational-Technical Institute will meet on a regular basis to discuss questions and problems of teaching.		X	
4.2. New teachers will be instructed on school policies, procedures, and personnel involved in support of their teaching as well as those involved in student support.	X		
4.3. New teachers will be instructed in the process of developing competency based curriculum.		X	

OBJECTIVES AND SUB-OBJECTIVES
AND THE EXTENT TO WHICH THEY HAVE BEEN MET

OBJECTIVES AND SUB-OBJECTIVES	Extent of Meeting the Objective		
	Fully Met	Partially Met	To Be Met
4.4. New teachers will participate in a special human relations program designed especially for them.		X	
5. A steering committee made up of administrators, department chairmen, coordinators, and teachers will be organized to direct the efforts of the curriculum specialist and assist in long range planning.		X	
6. The concept of the new teacher support program tested during the 1973-74 school year will be expanded to include all teachers.		X	
7. Plan and organize an extensive curriculum resource center in conjunction with the Instructional Material Center Staff.		X	
8. Long range curriculum planning for program offerings at a new Minneapolis Area Vocational-Technical Institute facility will be organized.		X	
8.1. The programs and courses will be organized around the fifteen career clusters identified by the U.S. Office of Education.	X		
8.2. A matrix of occupations and courses will be identified.		X	
8.3. General course content will be identified.		X	
8.4. Educational specifications for classrooms, laboratories, and equipment requirements will be developed.		X	

A brief description of the progress for each objective and sub-objective is listed below. Samples of materials developed are included as appendices in this report.

1. The organizational model for developing new programs and modifying existing programs developed during the first year of the project will be further tested and modified as needed.

This objective was fully met. The model has been used successfully with several departments with little or no modification needed. The model appears to provide good direction for curriculum development. A copy of the model was included in the first year interim report.

2. Curriculum will be developed based on accepted criteria for employment in industry.

This objective and sub-objectives is different for each department. Consequently, the objectives will be discussed individually as they pertain to specific departments.

TRANSPORTATION DEPARTMENT
Auto Mechanics:

The industry survey was completed and the results of the survey provided the necessary input for a competency/task listing. A sample of the survey was included in the first year interim report. The task listing was divided into three levels on the basis of the survey results. The levels consist of Level 1 - Service Station Mechanic, Level 2 - Independent Garage or Lower Level Dealer Garage Mechanic, and Level 3 - Dealer Mechanic. The levels were developed to allow the students to identify with a skill level and consequently, a job upon completion of the program. The student identifies a level with which he/she feels comfortable and then completes the competencies/tasks at that level as well as those tasks at the lower levels. It should be noted that the student is not "locked into" any given level in that he/she may change levels. A sample task listing by level for auto electricity is contained in Appendix A.

Some behavioral objectives and consequent individualized learning packages have been developed in the Auto Mechanics Program. A sample package for Level 1 of Automatic Transmissions is shown in Appendix B. A sound on slide media presentation accompanies the learning package. A story board of the media presentation is also found in Appendix B.

Auto/Truck Parts Program:

The parts instructor and the curriculum specialist have met several times and have produced a program model which is contained in Appendix C. A task analysis has been completed and is presently being tabulated. A copy of the task analysis appears in Appendix D. The instructor and curriculum specialist are presently working on the development of behavioral objectives and individualized learning packages utilizing multi-media.

Bus/Truck Mechanics Program:

The instructor and curriculum specialist have completed the orientation phase and a program model has been identified (Appendix E). A task analysis has been developed by the instructor but has not yet been validated (Appendix F). Behavioral objectives and learning packages have yet to be developed.

Import/Compact Auto Mechanics Program:

The orientation phase is completed and a program model was identified (Appendix G). A basic outline of instructional components has been identified (Appendix H), however, the task listing is still being developed at this time.

APPAREL ARTS DEPARTMENT

The orientation phase has been completed and the staff has begun identifying competencies and tasks. The program model was modified and shall be implemented during the 1975-76 school year. The addition of a "specialization" block as per the program model was developed and it will be an operational component of the program during 1975-76. Progress has not been great within this department primarily due to the planning of a new Minneapolis A.V.T.I. Long range planning (Objective No. 8) has become a high priority objective, consequently progress with other objectives has not transpired as previously anticipated.

FOOD SERVICE DEPARTMENT

The orientation of the Food Service Staff has been completed. The process of identification of competencies and tasks, however, has just begun. A program model was identified and a copy was included in the first year interim report. The first component of the program model, Introduction to Food Service was tested during the 1974-75 school year and was quite successful. In addition, the drop out rate of beginning students was decreased substantially. The total program model will be implemented during the 1975-76 school year. A working copy of competencies is included as Appendix I of this report. Again, as with the Apparel Arts Department, work has not progressed as expected due to the planning required for a new facility.

PATTERNMAKING PROGRAM:

The orientation phase is still under way as is the development of a program model. The progress was not according to the objectives within this department as several immediate needs were of a higher priority. The instructor was in need of assistance in actual teaching methods, scheduling student time, classroom management techniques, etc. Consequently, much of the time was devoted to these immediate needs. The results were well worth the deviation from the plan. The instructor has lowered the student drop out rate within the program and enrollment has increased to the point that a waiting list now exists where in the beginning of the year it looked as though the program might have to be dropped due to a lack of students.

A lesson was also learned by the curriculum specialist. An agenda of events must not overlook the immediate needs of an instructor or a program. Hopefully, the agenda can be implemented during the 1975-76 school year.

UPHOLSTERY DEPARTMENT

The orientation phase was completed. However, a time problem upset the progress toward completion of the stated objectives. The instructor does not have any spare time to develop the necessary program materials. He presently teaches post high and high school classes from 8:00 A.M. until 6:00 P.M. It appears that the only way in which to develop instructional packages in this program would be through a contract with the instructor.

3. A release time program for human relations training for all staff will be a continuing part of the project to emphasize the human element of the implementation of competency based curriculum.

The implementation of this objective occurred in a manner somewhat apart from the actual project. Craig Froke again served as a member of the Human Relations Committee.

A needs assessment of the staff was completed and the staff decided to pursue the following topics:

1. Human relations in industry.
2. Interstaff communications.
3. Building trust.

A plan of implementation was developed which is contained in Appendix J. The implementation followed the plan quite closely and was rather successful in stimulating discussion, especially the meetings concerning interstaff communications. The most positive aspect of the human relations program was in the involvement of the entire staff in identifying needs. The same technique is expected to be utilized during 1975-76.

4. The new teacher support program developed and tested during the 1973-74 school year shall be continued and modified to increase its effectiveness.

This objective was only partially met in that there were only four new teachers, of which only two had actual classroom responsibilities and two of them were working with the curriculum specialist on curriculum development. In addition there were three new support staff people. Because of the make up of the group it was decided to hold the orientation program for only one semester. A schedule of meetings and topics is included in Appendix K. The participants did feel that the meetings were very worthwhile and provided them with a valuable experience.

5. A steering committee made up of administrators, department chairmen, coordinators and teachers will be organized to direct the efforts of the curriculum specialist and assist in long range planning.

This objective was partially met in that a steering committee was established but it took on a somewhat different look than anticipated. The curriculum specialist met weekly with school administrators to discuss curriculum development and staff development progress as well as long term planning. From these meetings came many productive ideas, many of which have resulted in a major reform of positions, policies, etc. One notable example is an organizational model for the A.V.T.I. A working copy of the proposed model may be found in Appendix L. The model should be implemented in the fall of 1975 following necessary modification. Because the model proposes many changes in position responsibility, many meetings have been held to discuss the changes with the individuals affected and draft new job and position descriptions and responsibilities documents. Many additional meetings will be necessary before they are finalized.

The curriculum specialist also met weekly with the support staff to identify curriculum and staff development needs from the counselors' point-of-view. These meetings not only provide the curriculum specialist with direction but ensured a good working relationship with the counseling and support staff. In this manner, a team approach can be used to help instructors become more effective.

6. The concept of the new teacher support program tested during the 1973-74 school year will be expanded to include all teachers.

This objective was partially met as the program was not expanded to include all teachers. It was, however, used with one group of teachers with significant success.

The group involved in the program consisted of Secondary Center teachers who, by design, had a common hour for preparation. One hour of this preparation time each week was devoted to the orientation program conducted by Ken Thompson and Craig Froke. Most of the Secondary Center teachers also were teaching in the post high program, consequently, the program was justifiable from a post high position.

The topics covered in the program consisted of educational philosophy, values clarification, human relations, career education, and Adlerian psychology. For a more complete description of the topics the reader is directed to Appendix M of this report. The emphasis of the program was placed on the practical application of each topic in a classroom or laboratory situation. For example, when values clarification was discussed during a meeting, the teachers performed values clarification exercises themselves and were then encouraged to take the same exercises back to their class and use them. This technique provided a certain amount of control over the material and methods used in the classroom. A similar format was used throughout the meetings.

It became readily apparent after the first few meetings that immediate mechanical concerns of the teachers would have to be discussed before delving into the more philosophical issues. Because this was the first year of operation for the Secondary Center there were many concerns regarding mechanical items such as budgets, equipment, forms to be used, etc. The facilitators of the meetings decided to use this concern as a framework for the meetings around which the philosophical issues could be developed. This technique worked very well although at times the entire meeting would be devoted to the "nuts-and-bolts" issues. However, by the end of the school year each philosophical issue had been covered and the teachers seemed "hungry" for more.

The Secondary Center teachers and administrators were very pleased with the program. In fact, the 1974-75 program will be used as a model for Secondary Center programs throughout the Minneapolis Public Schools. The same approach involving more post secondary teachers is anticipated for the 1975-76 school year using the cluster approach discussed under Objective 8 below.

7. Plan and organize an extensive curriculum resource center in conjunction with the Instructional Material Center staff.

The definition of extensive places this objective in the "partially completed" column. Many references have been purchased and many more have been used through the Minnesota Instructional Materials Center. The purchased materials are all housed in one section of the library and organized by clusters and programs. A sample of curriculum references for the Commercial Foods Program is included in Appendix N.

While the materials have been heavily used the facilities for media production have also expanded to the point where more space must be found to provide the staff with this service. At the present time only about 360 square feet is available for production. It is expected that the space for 1975-76 will at least triple.

8. Long range curriculum planning for program offerings at a new Minneapolis Area Vocational-Technical Institute facility will be organized.

A major emphasis was placed upon this objective and corresponding sub-objectives when the voters of Minneapolis approved a new facility in a November referendum. The entire objective remains partially met but should be complete by August when the final draft of the educational specifications are due.

8.1. The programs and courses will be organized around the fifteen career clusters identified by the U.S. Office of Education.

This sub-objective was fully met. A copy of the program/occupation breakdown is contained in Appendix O. A slight deviation from the U.S. Office of Education exists in that a new cluster, Energy and Power, was developed to contain the electrical and electronics related programs rather than divide the programs into several clusters. A model of the Energy and Power cluster may be found in Appendix P.

It should be noted that MAVTI is not offering programs within every cluster. Consequently, only twelve of the fifteen clusters appear on the sheet (Appendix O). In addition, some of the programs are proposed for the new facility and have not received state approval. The cluster breakdown shown in Appendix O should be considered as a working copy and for discussion purposes only.

8.2. A matrix of occupations and courses will be identified.

This sub-objective was developed as procedural step in identifying programs and spaces within a new facility and was fully met. A sample matrix for the Health Occupations Cluster appears in Appendix Q.

It should be noted that the matrix exhibited in Appendix Q was a working copy for developmental purposes and as such presents a technique of development rather than an intent of offering the occupations listed. For example, Dental Assistant and Dental Lab Technician are occupations that are not programmed for a new facility although they appear on the matrix. The matrix should be considered for discussion and developmental purposes only.

8.3. General course content will be identified.

See 8.4. below.

8.4. Educational specifications for classrooms, laboratories, and equipment requirements will be identified.

Because the general course content (8.3.) is contained in the educational specifications these two sub-objectives will be combined.

Educational specifications make up the base for planning any new facility. A sample copy of educational specifications for Architectural Drafting is contained in Appendix R of this report. The educational specifications contain a program description, program objectives, instructional content, methods of instruction, relationship to other programs, student and instructor stations, space requirements, design requirements, and equipment needs and locations.

The status of the educational specifications is the second phase of a four phase process. The first phase included instructor and consultant input; the second phase used student, instructor, and advisory committee input; the third phase involves instructor, administration, and consultant input; and the fourth phase involves the instructor, advisory committee, administration, and consultant input. The second phase is complete and it is expected that the fourth phase should be completed by September, 1975.

The curriculum specialist has been and will continue to be involved with each program at every phase of development.

Significant Findings and Events:

A breakdown of findings and events by objective and sub-objective is contained in the previous section, "Major Activities and Accomplishments During This Period".

Problems:

Again, for a discussion of specific problems for each objective, the reader is directed to the "Major Activities and Accomplishments" section of this report. However, the chief problem area is concerned with the lack of sufficient instructor time and reward for making extensive changes to an existing curriculum, particularly when that existing curriculum seems to be operating satisfactorily. This is especially true of veteran instructors who have "been doing it this way for years without any problems". It seems that the best technique for affecting change with person is to make the reward one "that they cannot refuse". One such technique would provide for contracting with an instructor to perform a certain amount of curriculum development. This proposal is discussed in greater detail with a plan for implementation in the Addendum to the Proposal for Exemplary Program or Project in Vocational Education for 1975-76.

Another technique for instructors who do not have sufficient time to develop curriculum would provide for specific time out of the existing school day to perform the required tasks. This time would have to be carefully structured to provide the curriculum modification. To a certain extent this has been partially accomplished through scheduling. The curriculum specialist played a major role in developing class schedules for 1975-76 and in doing so obtained some curriculum time for almost every instructor. A sample schedule is exhibited in Appendix S. It is imperative that this time be carefully planned and structured. It is suggested that a position of Staff Development Specialist be considered for Minneapolis A.V.T.I. This person could work closely with the curriculum specialist and in doing so, provide a new dimension to curriculum and staff development.

Dissemination Activities:

No major dissemination activities took place during 1974-75. Some presentations were made by the curriculum specialist to various groups regarding the development of open-entry and open exit program models and individualized instruction. The groups receiving that presentation included:

1. Minneapolis Vocational Planning Committee.

2. Minneapolis Chamber of Commerce
   Education Committee.

3. Minneapolis Public Schools
   Secondary Center Staff.

4. A group of high school principals from rural Nebraska.

5. Various program advisory committees.

Data Collection:

Please refer to the section, "Major Activities and Accomplishments" and the appendices of this report.

Progress on Evaluation Plans and Procedures:

The project may be evaluated by inspection of the objectives and extent of completion contained in the section, "Major Activities and Accomplishments During This Period". While many objectives are only partially met and others remain to be met, it is believed that this project has accomplished a great deal.

The department-by-department curriculum development has not progressed entirely on schedule but the limited progress is more than offset by the progress on long term planning for a new building, the new organizational model, revised job descriptions and responsibilities, and the staff orientation program. The fact that the orientation program will move system wide within the Secondary Center program indicates its success.

The actual number of instructional packages developed is not large but it is anticipated that substantial progress will be accomplished through the proposed contracting system as well as through curriculum planning time for instructors.

Other Activities:

Additional activities include the curriculum specialist's involvement in class scheduling (see Appendix S and "Problems" section of this report). Many substantial gains in scheduling were realized. The organization of related subjects into a schedule on a planned basis is one notable gain.

An additional change involves elective subjects scheduled individually for students to provide custom programs to meet their individual occupational goals. This is a drastic change in an otherwise traditional program.

Staff Development:

The entire project is aimed at staff development and the section on "Major Activities and Accomplishments" covers this topic.

An additional note on staff development concerns the excellent support for curriculum development by the administration of the Minneapolis Area Vocational-Technical Institute. During the year the principal of MAVTI and the curriculum specialist met with every department and discussed curriculum planning. The principal, Wayne Nelson, and the curriculum specialist jointly developed a memorandum stating the parameters of curriculum development. This document was the sole agenda item for the aforementioned departmental meetings. A copy of this memorandum may be found in Appendix T.

The curriculum specialist was also involved in the development of the Metropolitan In Service Directors group where plans for a unified system of inservice and staff development has been developed under the guidance of John Van Ast.

Staff Employment and Utilization:

There are three individuals directly involved with the project, curriculum specialist, media specialist aide, and the curriculum production aide.

The curriculum specialist's work on this project has already been discussed throughout this report. The media specialist aide has been responsible for the production of slide presentations, detail work on instructional packages, tape duplication, photography, detail work on story boards, assisting instructors in identifying content areas suitable for media, and the preparation of corresponding graphics.

The curriculum production aide has been responsible for the typing and duplication of curriculum materials, transparency production, the typing of correspondence, etc.

In addition to the three individuals mentioned above, an instructor was relieved of one hour of daily class responsibilities to assist in the curriculum project. His area of expertise is drafting and his assistance in graphic layout and design provided an additional dimension to the curriculum project. His assistance was significant and he often spent more than the allotted one hour per day working on curriculum.

Nearly every instructor has had some responsibility in working on curriculum. The utilization of these instructors has been previously discussed in this report.

Future Activities Planned for the Next Reporting Period:

The specific objectives and plan of implementation for 1975-76 is discussed in the Addendum to the Proposal for 1975-76.

Generally the following list describes activities for 1975-76:

1. Contract with instructors to write curriculum.

2. Additional time for instructors has been made available and must be carefully structured.

3. Additional space for curriculum and media production will be provided.

4. .6 of an instructor will be provided from MAVTI to assist the project.

5. Curriculum development by program will continue in 1975-76.

6. The new staff orientation program will continue in 1975-76.

7. The orientation (staff development) of existing staff will continue with expansion on a cluster basis.

8. The human relations program will be an on-going portion of the project.

9. Long range planning for a new MAVTI facility will continue within each program as well as for the overall operation and management of the facility.

10. The Minneapolis Area Vocational-Technical Institute has committed a substantial amount of funds for curriculum development.

11. It is anticipated that a staff development specialist will be employed during 1975-76 which will provide a significant impact on curriculum development.

APPENDIX A

TASK LISTING FOR AUTO ELECTRICITY

COMPETENCIES

1.	Auto Electricity
1.1.	Storage Battery
1.1.1.	Level One
1.1.1.1.	Remove and replace battery.
1.1.1.2.	Visually inspect battery.
1.1.1.3.	Clean battery terminals.
1.1.1.4.	Test specific gravity.
1.1.1.5.	Perform high rate discharge test.
1.1.1.6.	Activate dry-type battery.
1.1.1.7.	Slow charge battery.
1.1.1.8.	Fast charge battery.
1.1.1.9.	Know battery ratings.
1.1.1.10.	Know theory of battery operation.
1.1.1.11.	Safety precautions - charging.
1.2.	Cranking System
1.2.1.	Level One
1.2.1.1.	Check cable connections with battery insp. & service.
1.2.1.2.	Check cable conditions with battery insp. & service.
1.2.1.3.	Check ground connections with battery insp. & service.
1.2.1.4.	Measure voltage drop (Bat.-Sol.)
1.2.1.5.	Measure voltage drop across sol.
1.2.1.6.	Test starter current draw.
1.2.1.7.	Remove and replace starter.

1.3. Charging System

1.3.1. Level One

1.3.1.1. Remove and replace generator.

1.3.1.2. Perform gen. circuit resistance test.

1.3.1.3. Perform gen. output current test

1.3.1.4. Check wire connections.

1.3.1.5. Check wire condition.

1.3.1.6. Remove and replace alternator.

1.3.1.7. Make Alt. current output test.

1.3.1.8. Make Alt. circuit resistance tests.

1.3.1.9. Make alternator voltage test.

1.3.1.10. Test and adjust drive-belt tension.

1.3.1.11. Inspect condition of alt.-drive belt.

1.4. Ignition System

1.4.1. Level One

1.4.1.1. Know theory of operation (standard ignition).

1.4.1.2. Trace primary circuit.

1.4.1.3. Trace secondary circuit.

1.4.1.4. Remove and replace high voltage wires.

1.4.1.5. Remove and replace spark plugs.

1.4.1.6. Clean, cap and test spark plugs.

1.4.1.7. Diagnose spark plugs from engine.

1.4.1.8. Know spark plug heat ranges and effects.

1.4.1.9. Remove, install and adjust points.

1.4.1.10. Measure and adjust dwell.

1.4.1.11. Check and adjust engine timing.

1.4.1.12. Test ignition system with scope.

1.4.1.13. Diagnose and repair ignition system malfunctions.

1.4.1.14. Read and trace schematic diagrams of ignition system.

1.5. Lighting and Horn Circuits

1.5.1. Level One

1.5.1.1. Remove and replace head lamps.

1.5.1.2. Adjust headlamp for proper "aim".

1.5.1.3. Remove and replace dimmer switch.

1.5.1.4. Read schematic diagram of lighting circuits.

1.5.1.5. Remove and replace fuse and know the function of fuses and overload devices.

1.5.1.6. Solder wires and connections.

1.5.1.7. Use voltmeter to locate electrical problems.

1.5.1.8. Remove and replace wire terminals.

1.5.1.9. Solder wires and terminals.

1.5.1.10. Use solderless connectors.

1.5.1.11. Remove and replace stoplight switch and adjust stop light switch positions.

1.5.1.12. Know effects of wire size and length on voltage and current.

1.6. Gauges and Indicators

1.6.1. Level One

1.6.1.1. Know theory of operation of ammeter (alt. gauge).

COMPETENCIES

1.	Auto Electricity
1.1.	Storage Battery
1.1.2.	Level Two
1.1.2.1	Perform light load test.
1.2.	Cranking System
1.2.2.	Level Two
1.2.2.1.	Test starter field windings.
1.2.2.2.	Test and replace starter brushes.
1.2.2.3.	Test and service starter armature.
1.2.2.4.	Diagnose cranking system problems.
1.2.2.5.	Know theory of starter operation.
1.2.2.6.	Know electrical theory.
1.3.	Charging System
1.3.2.	Level Two
1.3.2.1.	Know theory of generators.
1.3.2.2.	Know theory of generator regulators.
1.3.2.3.	Test and replace generator brushes.
1.3.2.4.	Know theory of alternators.
1.3.2.5.	Know theory of alternator regulators.
1.3.2.6.	Test and service alt. rotor and slip rings.
1.3.2.7.	Test and service alt. rectifiler diodes.
1.3.2.8.	Test and service alt. stator windings.
1.3.2.9.	Test and adjust alternator regulator.
1.3.2.10.	Disassemble and assemble alternator.

1.4. Ignition System

1.4.2. Level Two

1.4.2.1. Test ignition coil (primary & secondary).

1.4.2.2. Test ignition conderser.

1.4.2.3. Remove and replace ignition switch.

1.4.2.4. Remove and replace distributer.

1.4.2.5. Test distributer on test machine.

1.4.2.6. Test ignition system with scope.

1.4.2.7. Diagnose and repair ignition system malfunctions.

1.4.2.8. Test and service dual point distributors.

1.4.2.9. Know operation of dual point distributors.

1.4.2.10. Know theory of electronic ignitions.

1.5. Lighting and Horn Circuits

1.5.2. Level Two

1.5.2.1. Remove and replace light switch.

1.5.2.2. Remove and replace head lamp relay.

1.5.2.3. Know the operation of head lamp relay.

1.5.2.4. Know the operation of overload relays.

1.5.2.5. Remove and replace wiring harness and trace wiring in vehicle. Visually inspect wiring for defects.

1.5.2.6. Know operation of turn signal switch, remove and replace flasher unit, and diagnose and repair turn signal problems.

1.5.2.7. Diagnose and repair horn circuit malfunctions.

COMPETENCIES

1.	Auto Electricity
1.3.	Charging System
1.3.3.	Level Three
1.3.3.1.	Make alternator current output test.
1.3.3.2.	Make alternator circuit resistance tests.
1.3.3.3.	Make alternator voltage test.
1.3.3.4.	Diagnose charging circuit malfunctions.
1.4.	Ignition System
1.4.3.	Level Three
1.4.3.1.	Know operation of advance mechanisms.
1.4.3.2.	Adjust advance mechanisms.
1.4.3.3.	Overhaul distributer.
1.4.3.4.	Test ignition system with scope.
1.4.3.5.	Diagnose and repair ignition system malfunctions.
1.4.3.6.	Test and service electronic ignitions.
1.5.	Lighting and Horn Circuits
1.5.3.	Level Three
1.5.3.1.	Remove and replace wiring harness, trace wiring in vehicle and visually inspect wiring for defects.
1.5.3.2.	Use voltmeter to locate electrical problems.
1.5.3.3.	Know operation of 4 way flashers and diagnose and repair 4 way flasher system.
1.6.	Gauges and Indicators
1.6.3.	Level Three
1.6.3.1.	Know theory of operation of ammeter (alternator gauge)

1.6.3.2. Test operation of ammeter.

1.6.3.3. Remove and replace ammeter gauge.

1.6.3.4. Diagnose and repair problems with ammeter gauge.

1.6.3.5. Know theory of operation of elect. oil pressure gauge.

1.6.3.6. Know theory of operation of mechanical oil pressure gauge.

1.6.3.7. Remove and replace oil pressure gauge.

1.6.3.8. Remove and replace oil pressure sending unit.

1.6.3.9. Diagnose and repair problems of oil pressure gauge.

1.6.3.10. Know theory of operation of elect. temperature gauge.

1.6.3.11. Know theory of operation of mech. temperature gauge.

1.6.3.12. Remove and replace water temperature sending unit.

1.6.3.13. Diagnose and repair problems in temperature gauge.

1.6.3.14. Know theory of operation of fuel gauge.

1.6.3.15. Test operation of fuel gauge.

1.6.3.16. Test operation of fuel gauge tank unit.

1.6.3.17. Remove and replace fuel gauge.

1.6.3.18. Remove and replace fuel gauge sending unit.

1.6.3.19. Diagnose and repair fuel gauge problems.

1.6.3.20. Know operation of ammeter warning light.

1.6.3.21. Test operation of ammeter warning system.

1.6.3.22. Remove and replace ammeter warning sending unit.

1.6.3.23. Diagnose and repair amp. warning light system.

1.6.3.24. Know operation of oil pressure warning light system.

1.6.3.25. Test operation of oil pressure warning light system.

1.6.3.26. Remove and replace oil pressure warning light sending unit.

1.6.3.27. Diagnose and repair oil pressure warning light system problems.

1.6.3.28. Know operation of temperature warning light system.

1.6.3.29. Test operation of temperature warning light system.

1.6.3.30. Remove and replace temperature light sending unit.

1.6.3.31. Diagnose and repair temperature light sending unit.

1.6.3.32. Know operation of brake malfunction warning light.

1.6.3.33. Test operation of brake malfunction warning light.

1.6.3.34. Remove and replace brake malfunction light sending unit.

1.6.3.35. Diagnose and repair brake warning light system problems.

1.6.3.36. Seat Belt System.

APPENDIX B

A SAMPLE INDIVIDUALIZED LEARNING PACKAGE WITH CORRESPONDING MEDIA

CHECKING FLUID LEVEL AND ADDING FLUID TO AN AUTOMATIC TRANSMISSION

TASK/COMPETENCY 11.2.1.7

MAVTI TRANSPORTATION DEPT.

© 1974 MPLS. AREA VOCATIONAL TECHNICAL INSTITUTE

Permission to reproduce this copyrighted material has been granted by
CRAIG N. FROKE
MINN. AREA. VO. TECH INST.
to AIM/ARM, ERIC, and organizations operating under agreements with the U.S. Office of Education and National Institute of Education. Further reproduction outside the AIM/ARM and ERIC systems requires permission of the copyright owner.

MAVTI INSTRUCTIONAL PACKAGE 11.2.1.7

TRANSPORTATION CENTER

Program: Auto Mechanics

Course: 11. Automatic Transmission

Task/Competency: 11.2.1.7 Check Transmission Fluid Level and Add Fluid As Necessary

Objective: Given an automobile with an automatic transmission, you will check the fluid level of the transmission and add fluid as necessary to the satisfaction of the instructor.

Sub-Objectives: Upon completion of the objective you will know the following:

1. Types of automatic transmission fluid.
2. Condition of vehicle while checking the fluid.
3. Proper use of equipment utilized in checking and adding fluid.
4. The difference between transmission fluid which has been burned and normal fluid by sight and smell.
5. How much fluid to add.

Upon completion of the objective you will be able to do the following:

1. Check the fluid level of an automatic transmission.
2. Add the proper amount of fluid to an automatic transmission.

References: Chilton's Auto Repair Manual. (See Automatic Transmission Section for specific vehicle.)

Special Instructions:

If you need assistance on any of the steps in the Learning Procedure, refer to the references indicated, the service manual for the specific vehicle you are working on (or a Motor's Manual), or your instructor.

Evaluation:

You will be evaluated on your performance in checking fluid level and adding fluid to an automatic transmission. There are several "Instructor Check" points in the procedure. You must have the instructor check your work at these points to get credit for this task/competency.

If you feel you are already competent in checking and adding fluid to an automatic transmission notify your instructor and he will arrange a performance test for you. If you are proven competent you will not have to go any further with this package.

Learning Procedure:

There are two ways to follow the Learning Procedure:

Option 1. Obtain the sound-on-slide package from your instructor and use that package with option no. 2 to check and add fluid to a transmission.

Option 2. Read the following basic procedure on checking and adding fluid to an automatic transmission and complete the task. Make sure you get your instructor's O.K. where it is required. No credit will be given without his O.K.

CHECKING FLUID LEVEL IN AN AUTOMATIC TRANSMISSION

Follow this general procedure for checking fluid level in a vehicle equipped with an automatic transmission.

1. Transmission should be at normal operating temperature. Transmission fluid shrinks, or contracts, as it cools. Checking a cold transmission will give an inaccurate reading.

2. Vehicle should be located on a level area. If the vehicle is not level the fluid will drain to one end of the transmission and the dipstick reading will be incorrect.

3. Check dipstick cap for cleanliness and clean, if necessary, to avoid contamination of transmission fluid.

4. Set parking brake firmly, start and idle engine. Move selector lever through all positions, pausing momentarily in each, then return to either neutral or park as recommended in the service manual.

5. Check fluid level immediately. Remove dipstick, wipe clean and reinsert in filler tube, seating it properly, remove dipstick again and check fluid level. Make sure you are checking the transmission and not the engine. If you are not sure, see your instructor.

6. Inspect fluid for darkened color and burned odor. Burned fluid, which is caused by overheating the transmission, generally is an indication of serious problems within the transmission. This fluid must be replaced and a thorough inspection of the transmission is advised. This is a good opportunity to make a sale while performing a vital service for the customer. In-car transmission service is often neglected.

   Call your instructor for his O.K. at this point. No credit will be given for this task without his O.K.

_____
Instructor
O.K.

7. Add the specified automatic transmission fluid to bring the fluid level to the mark on the dipstick as explained in the service manual. Fluid should be at room temperature.

   CAUTION: DO NOT OVERFILL THE TRANSMISSION.

   Add small amounts of fluid, (less than a pint) at a time. Overfilling will cause foaming and loss of fluid through vent pipe. Excess fluid, if left in the transmission could cause mechanical damage. If fluid is above recommended level, remove excess fluid with a CLEAN siphen gun.

8. Install dipstick making sure the cap is securely seated.

_____ 9. Have instructor check your work and O.K. the job.
Instructor
O.K.

SOUND/SLIDE–Story Board Pad

CHECKING FLUID LEVEL
AND ADDING FLUID
TO AN AUTOMATIC
TRANSMISSION

Cut outs - oil cans transmission fluid

Task/Competency 11.2.1.7

MAVTI TRANSPORTATION DEPT.

1974 MPLS. AREA VOCATIONAL-TECHNICAL INSTITUTE

FRAME 1

This presentation outlines a general procedure to follow when checking fluid level in an automatic transmission and when adding fluid to an automatic transmission. Consult the specific manual for more complete information on any given auto.

(Close-up of Temperature Gauge At Operating Temperature)

FRAME 2

The transmission should be at normal operating temperature before you check the fluid level. If the transmission is cold, run the engine at idle for 15 minutes or until it reaches normal operating temperature. Transmission fluid contracts or shrinks as it cools. If you check a cold transmission you will get an inaccurate reading.

(Slide of two cars, side view, with transmission and dip stick drawn in and fluid level shown. One car level and one car tilted showing how the fluid drains to one end.)

FRAME 3

The vehicle should be located on a level area, if the vehicle is not level the fluid will drain to one end of the transmission and the dip stick reading will be incorrect. Notice what happens to the fluid when a vehicle is not level as shown by the two cars on the screen.

Permission to reproduce this copyrighted material has been granted by CRAIG N. FROKE, MINN. AREA VO. TECH. INST. to AIM/ARM, ERIC, and organizations operating under agreements with the U.S. Office of Education and National Institute of Education. Further reproduction outside the AIM/ARM and ERIC systems requires permission of the copyright owner.

Visual Products Division 3M
© COPYRIGHT 1969 BY 3M COMPANY

(Slide of 2 selectors showing different positions of indicator.)

FRAME 4

Set the parking brake firmly, then start and idle the engine. Next move the gear selector level through all the positions, pausing momentarily in each one. Return to either neutral or park as recommended in the service manual.

(Slide of engine compartment with arrow pointing to dip stick.)

FRAME 5

Locate the transmission dip stick which is usually on the right hand or passenger side of engine and toward the firewall of the vehicle.

(Slide of hands wiping a dirty dip stick cap.)

FRAME 6

Check the dip stick cap for cleanliness. Clean it if necessary. If dirt falls into the filler tube, it will contaminate the transmission fluid and damage the transmission.

Visual Products Division 3M
© COPYRIGHT 1987 3M COMPANY

SOUND/SLIDE—Story Board Pad

(Slide of hands holding dip stick and wiping.)

FRAME 7

Remove the dip stick and wipe it clean with a clean dry rag or paper towel.

(Slide of dip stick fully seated, hand pushing stick down into tube.)

FRAME 8

Then reinsert it in the filler tube, seating it properly.

(Slide of dip stick with person checking level.)

FRAME 9

Remove the dip stick again and check the fluid level.

Visual Products Division 3M
© COPYRIGHT 1969 BY 3M COMPANY

SOUND/SLIDE–Story Board Pad

(Slide of comparison in color - good and burned fluid in beakers.)

FRAME 10

At this time you should also inspect the fluid for darkened color and burned odor. Burned fluid, which is caused by overheating the transmission, generally is an indication of more serious problems within the transmission. This fluid must be replaced and a thorough inspection of the transmission is advised.

This is a good opportunity to make a sale while performing a vital service for the customer. In-car transmission service is often neglected.

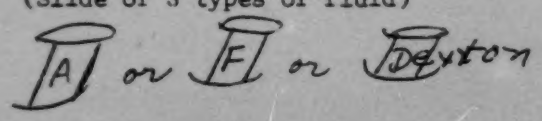
Call your instructor for his O.K. at this point. No credit will be given for this task without his O.K.

(Slide of mechanic adding fluid to a transmission.)

FRAME 11

Add the specified automatic transmission fluid to bring the fluid level to the mark on the dip stick as explained in the service manual. Fluid should be at room temperature. Make sure you add the correct type of fluid to the transmission.

Make sure it's the right fluid.
(Slide of 3 types of fluid)



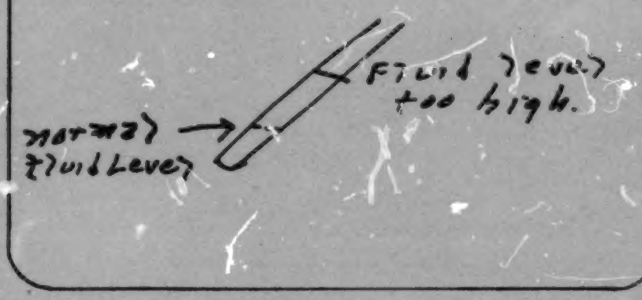
Consult the manual

FRAME 12

If you don't know which type of fluid to use, consult a manual as there are three different types of automatic transmission fluid available. Adding the wrong type of fluid could damage the transmission.

Visual Products Division 3M
© COPYRIGHT 1969 BY 3M COMPANY

(Close up of dip stick comparing fluid levels.)



FRAME 13

You must be careful not to add too much fluid to the transmission as overfilling will cause foaming and loss of fluid through the vent pipe. Excess fluid, if left in the transmission could cause mechanical damage. To avoid overfilling a transmission, add small amounts of fluid, usually a pint at a time and recheck the level each time you add fluid.

(Close up of dip stick being seated on the tube.)

FRAME 14

Install the dip stick making sure the cap is securely seated. You have now completed this task.

Have your instructor check your work and O.K. the job.

FRAME

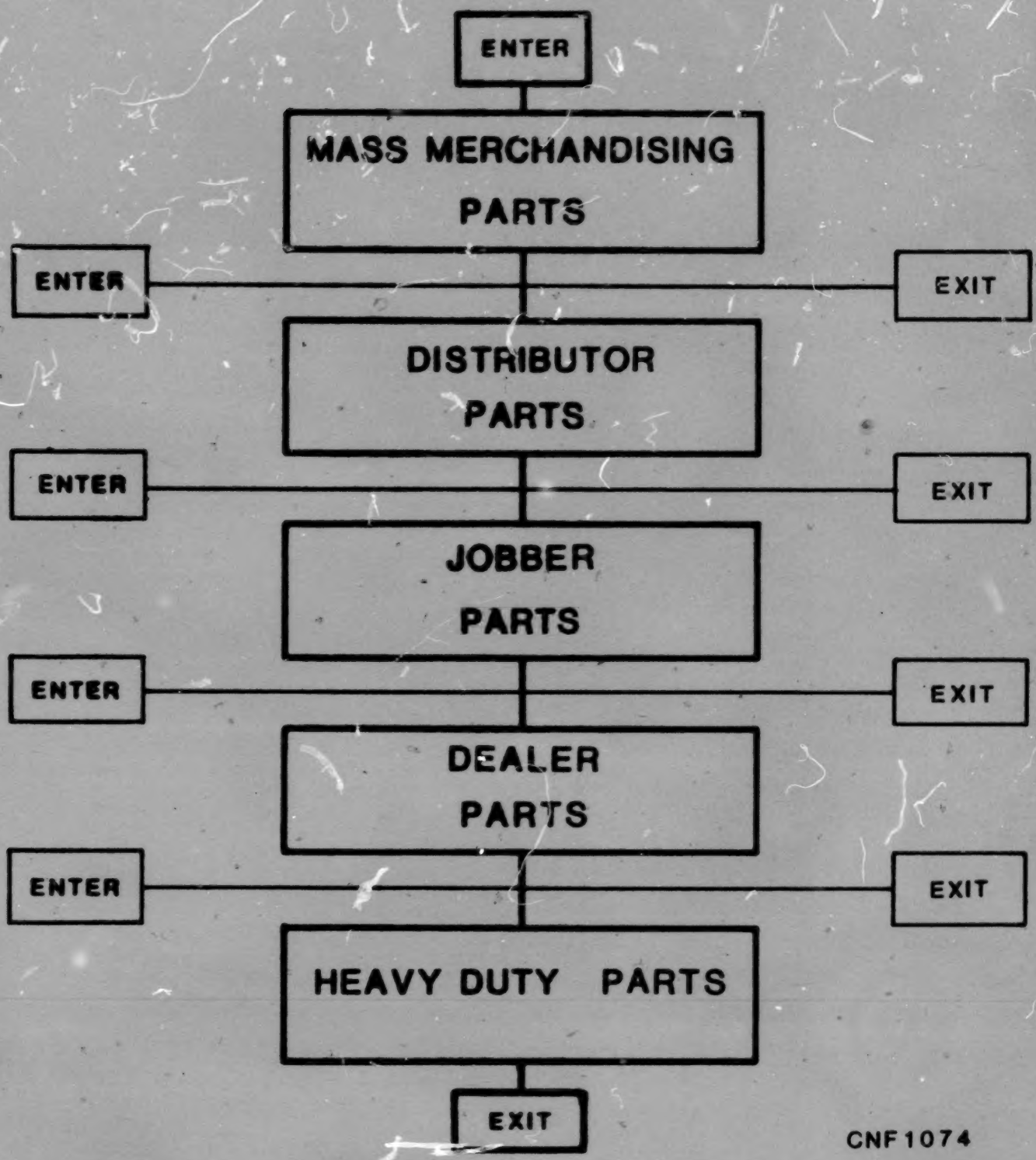
Visual Products Division 3M
© COPYRIGHT 1969 BY 3M COMPANY

APPENDIX C

AUTO TRUCK PARTS PROGRAM MODEL

AUTO-TRUCK PARTS

PROGRAM MODEL



CNF1074

APPENDIX D

AUTO/TRUCK PARTS TASK ANALYSIS

Please indicate the frequency of performance and check the degree of competency (knowledge and skill) needed to enter your organization as an employee for each of the competencies listed. Add those you feel should be included.

No./day, wk., mo., etc.

E=Entry
A=Advancement

Occupation or Program: AUTO-TRUCK PARTS		Frequency of Performance	Degree of Competency		
No.	COMPETENCY		Unnecessary	Desirable	Essential
1.	Use telephone properly.				
2.	Practice desirable sales techniques.				
3.	Sell related items.				
4.	Communicate effectively with customers and fellow employees.				
5.	Fill out repair orders.				
6.	Fill out invoices.				
7.	Fill out miscellaneous forms (warranty, memos, sales reports, etc.).				
8.	Use adding machine.				
9.	Use cash register.				
10.	Make change.				
11.	Compute sales tax.				
12.	Figure discounts and percentages.				
13.	Operate credit card program.				
14.	Use Weatherly Index System.				
15.	Use parts catalogs.				
16.	Identify assemblies and components.				
17.	Practice good housekeeping.				
18.	Receive and stock parts.				

Please indicate the frequency of performance and check the degree of competency (knowledge and skill) needed to enter your organization as an employee for each of the competencies listed. Add those you feel should be included.

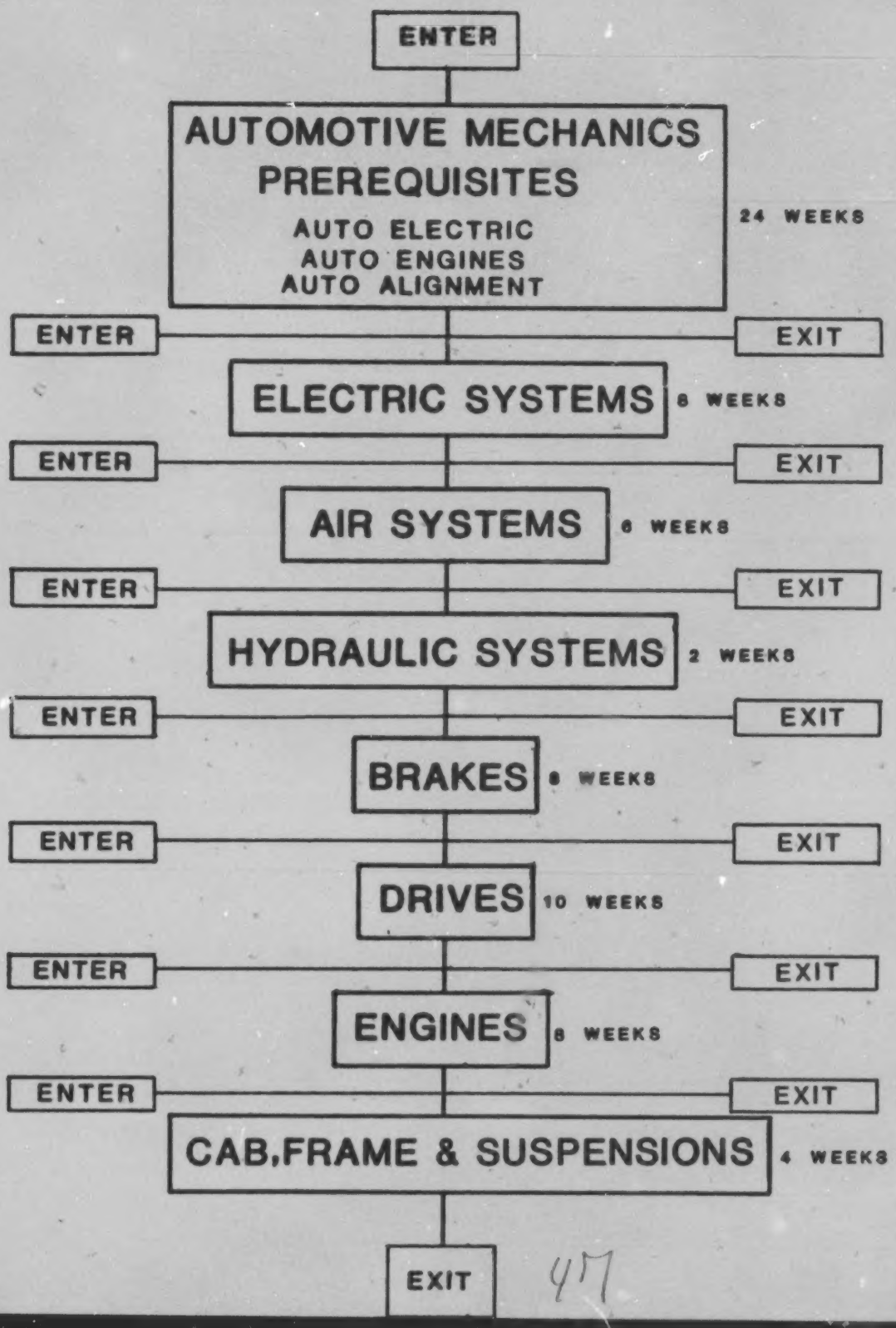
No./day, wk., mo., etc. E=Entry A=Advancement

Occupation or Program: Auto-Truck Parts (Cont.)		Frequency of Performance	Degree of Competency		
No.	COMPETENCY		Unnecessary	Desirable	Essential
19.	Ship parts.				
20.	Handle core returns.				
21.	Take inventory of stock.				
22.	Operate inventory control system.				
23.	Handle sale of exchange units.				
24.	Pick up and deliver parts.				
25.	Operate Microfiche.				
26.	Display merchandise.				
27.	Measure with special instruments.				
28.	Operate battery tester, charger, and prepare battery for service.				
29.	Understand operations involved in arcing brake shoes.				
30.	Understand operations involved in turning brake drums and/or rotors.				
31.	Understand operations involved in pressing bearings (including safety precautions)				
32.	Understand operations involved in head and valve work.				
33.	Update catalog.				
34.	Other (Please specify)				
35.					

APPENDIX E

BUS/TRUCK PROGRAM MODEL

TRUCK-BUS MECHANICS • PROGRAM MODEL



47

APPENDIX F

BUS/TRUCK MECHANICS TASK ANALYSIS FORM

Please indicate the frequency of performance and check the degree of competency (knowledge and skill) needed to enter your organization as an employee for each of the competencies listed. Add those you feel should be included.

No./day, wk., mo., etc.

E=Entry
A=Advancement

Occupation or Program: TRUCK/BUS MECHANIC COMPETENCIES		Frequency of Performance	Degree of Competency		
No.	COMPETENCY		Unnecessary	Desirable	Essential
	ELECTRICAL SYSTEMS:				
1.	Test, repair & replace starter.				
2.	Test, repair & replace generator.				
3.	Test, repair & replace alternator.				
4.	Test, repair & replace series parallel switch.				
5.	Test and repair Jake Brake.				
6.	Test, repair & replace light circuits.				
7.	Test, repair & replace gauges.				
8.	Test, repair & replace wire harness.				
9.	Test, repair & replace engine shutdown systems.				
	AIR SYSTEMS:				
1.	Test, repair & replace brake valves.				
2.	Test and repair air starter.				
3.	Test, repair & replace air shift controls.				
4.	Test, repair & replace air clutch.				
5.	Test and repair air wipers.				
6.	Test and repair air steering.				

Please indicate the frequency of performance and check the degree of competency (knowledge and skill) needed to enter your organization as an employee for each of the competencies listed. Add those you feel should be included.

No./day, wk., mc., etc.

E=Entry
A=Advancement

Occupation or Program: TRUCK/BUS MECHANIC COMPETENCIES		Frequency of Performance	Degree of Competency		
No.	COMPETENCY		Unnecessary	Desirable	Essential
	HYDRAULIC SYSTEMS:				
1.	Test, repair & replace wet clutches.				
2.	Know automatic transmission fundamentals.				
3.	Test, repair & replace Power take-off and pumps.				
4.	Test, repair & replace hydraulic power steering.				
5.	Test, repair & replace hydraulic controls.				
	BRAKES:				
1.	Test, repair & replace Hydro Vac.				
2.	Test, repair & replace Air over hydraulic booster.				
3.	Test and repair airbrake chambers.				
4.	Overhaul S-Cam brakes.				
5.	Overhaul wedge brakes.				
6.	Overhaul hydraulic brakes.				
7.	Test and repair anti-skid brakes.				
8.	Test, repair & replace parking brakes.				

Please indicate the frequency of performance and check the degree of competency (knowledge and skill) needed to enter your organization as an employee for each of the competencies listed. Add those you feel should be included.

No./day, wk., mo., etc.

E=Entry
A=Advancement

	Occupation or Program: TRUCK/BUS MECHANIC COMPETENCIES	Frequency of Performance	Degree of Competency		
No.	COMPETENCY		Unnecessary	Desirable	Essential
	DRIVES:				
1.	Inspect and replace bell housing.				
2.	Test, repair & replace clutches.				
3.	Test, repair & replace transmission.				
4.	Test, repair & replace U-Joints.				
5.	Test & repair drive shaft alignment.				
6.	Test, repair & replace differential.				
7.	Test & repair power dividers.				
8.	Test & repair transfer cases.				
9.	Test & repair front driving axels.				
	ENGINES:				
1.	Remove & replace engine.				
2.	Remove & replace cylinder sleeve.				
3.	Grind valves.				
4.	Replace cam shafts.				
5.	Diagnose engine noises.				
6.	Test, repair & replace electric ignition.				
7.	Test, repair & replace fuel injection.				
8.	Tune-up gas engine.				

Please indicate the frequency of performance and check the degree of competency (knowledge and skill) needed to enter your organization as an employee for each of the competencies listed. Add those you feel should be included.

No./day, wk., mo., etc.

E=Entry
A=Advancement

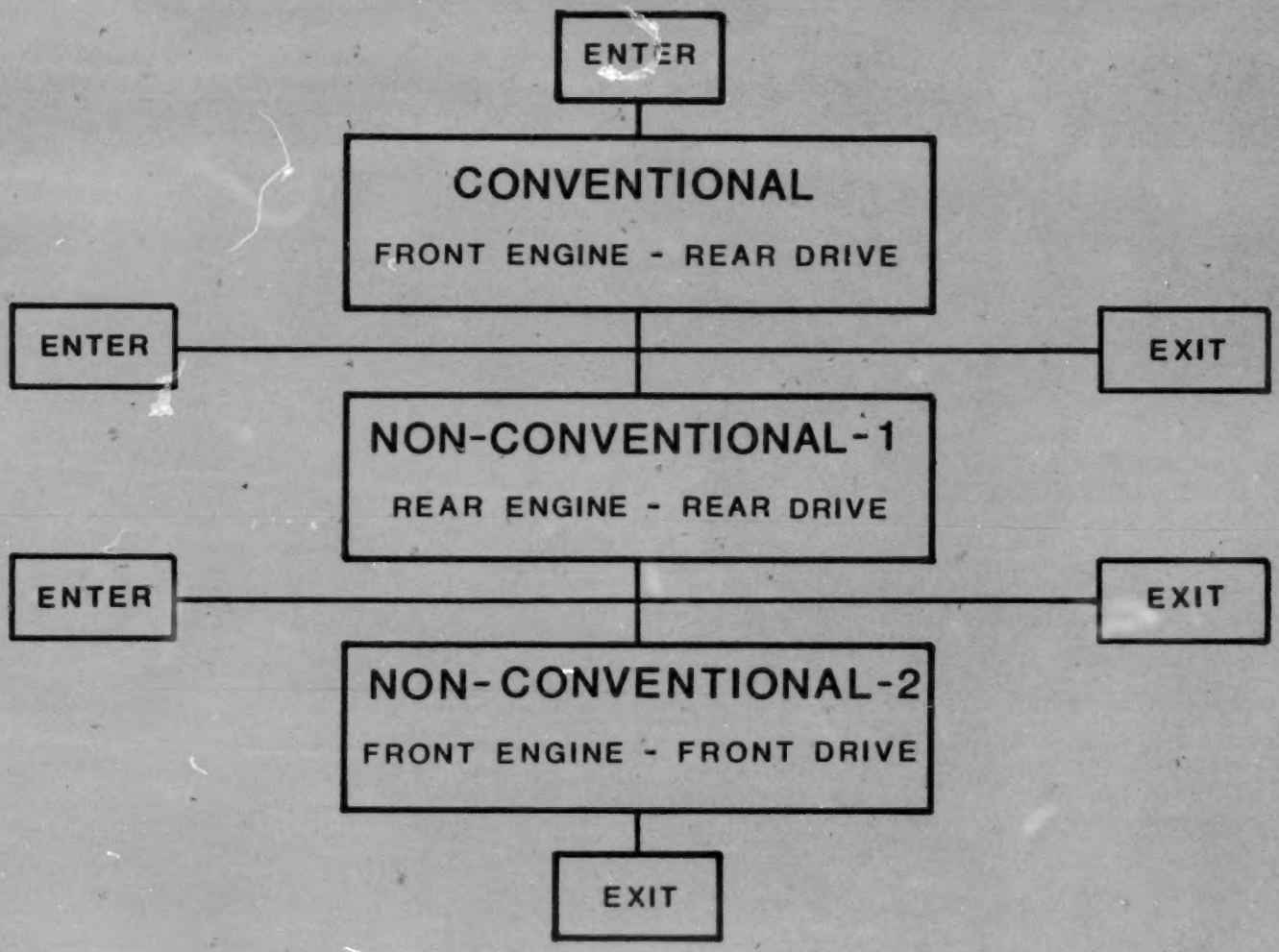
Occupation or Program: TRUCK/BUS MECHANIC COMPETENCIES		Frequency of Performance	Degree of Competency		
No.	COMPETENCY		Unnecessary	Desirable	Essential
	Engines: Continued				
9.	Tune-up diesel engine.				
10.	Diagnose diesel engine trouble from appearance of smoke.				
	CAB & FRAME:				
1.	Repair & replace cab mounts.				
2.	Repair & replace door hardware.				
3.	Repair & replace glass.				
4.	Repair & replace frame cross members.				
5.	Repair & replace spring mounts.				
6.	Repair & replace springs.				
7.	Repair & replace torque arms.				
8.	Repair walking beams.				
9.	Align tandem axles.				
10.	Align steering axle.				
11.	Replace king pins.				
12.	Repair & replace steering box.				

APPENDIX G

IMPORT/COMPACT AUTO MECHANICS PROGRAM MODEL

IMPORT-COMPACT AUTO MECHANICS

PROGRAM MODEL



CNF1074

APPENDIX H

IMPORT/COMPACT AUTO MECHANICS INSTRUCTIONAL COMPONENTS

MINNEAPOLIS AVTI
TRANSPORTATION CENTER
OCT., 1974

IMPORT/COMPACT AUTO MECHANICS

PROGRAM ORGANIZATION

I. Conventional Vehicles (front engine, rear drive)

A. Vehicles to be covered

1. Imported Vehicles:

Austin Marina
Capri (Mercury)
Datsun
Dodge Colt
Fiat
Jaguar
M.G.
Mercedes Benz
Opel
Plymouth Cricket
Peugeot
Toyota
Triumph
Volvo

2. Domestic Vehicles:

Mavrick
Mustang II
Pinto
Vega

B. Instructional Components:

1. Metric System
2. Engines (Overhead cam type)
3. Electronic fuel injection and constant injection
4. Carburetion
5. Automatic transmissions
6. Four speed manual transmission
7. Electrical system
8. Diesel engine (Mercedes Benz and Peugeot
9. Mechanical fuel injection
10. Brakes (4 wheel disc type)

II. Non-Convention 1 (Rear engine, rear drive)

A. Vehicles to be covered

1. Imported vehicles:

Porsche
Volkswagon 1300 (Beetle)
Volkswagon Type 2
Volkswagon Type 3
Volkswagon Type 411

2. Domestic vehicles:

Corvair

B. Instructional components

1. Air-cooled engine

2. Transaxle (Manual transmission & differential)

3. Linkages

4. Automatic transmission

5. Fuel system

6. Rear end alignment

57

III. Non-Conventional 2 (Front engine, front drive)

A. Vehicles to be covered

1. Imported vehicles:

Audi 100
Audi Fox
B.M.W.
Fiat
Honda
Renault
Saab
Subaru
Volkswagen (New type to be released within next year to replace 1300 Beetle)

2. Domestic vehicles

None

3. Other vehicles

Mazda rotary

B. Instructional Components

1. C.V.C.C. engine (Honda).
2. Fiat 4 water cooled engine (Subaru Quadra-zontal)
3. Rotary engine (Mazda Wankel)
4. Overhead cam engine
5. Transaxle (manual transmission and differential)
6. Automatic Transmission
7. Front end alignment
8. Cooling system

BEST COPY AVAILABLE

APPENDIX I

A WORKING COPY OF FOOD SERVICE COMPETENCIES

FOOD SERVICE INDUSTRY

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

Basic Courses in Program:

1. Introduction to Food Service
2. Quantity Cooking
3. Fast Food Service
4. Restaurant Service
5. Specialization

FOOD SERVICE INDUSTRY

(Food Service Employee - Food Service Occupations)

Typical Occupations:

1. Fry Cook
2. Second Cook
3. Cook's Helper
4. Institutional Cook
5. Salad Maker
6. Pastry Cook
7. Waiter-Waitress
8. Bus "Person"
9. Ware Washer
10. Broiler Person
11. Stock Room Attendant
12. Cafeteria Serving
13. Host-Hostess
14. Cashier
15. Dinner Cooking
16. Cook's Chef
17.
18.
19.
20.
21.
22.
23.
24.

BEST COPY AVAILABLE

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: Introduction to the Food Service Industry

LENGTH OF INSTRUCTION

Instructional Topics:

1. Employment Outlook - availability of jobs, types of jobs, etc.
2. Employer Expectations - performance, attitude, qualities, etc.
3. Safety
4. Sanitation - personal hygiene, appearance, grooming, etc.
5. Measurement
6. Equipment - types, operation, maintenance (basic types)
7. Food chemistry
8. Terminology of food service industry
9. School policies
10. Nutrition
11. Types of food service
12. Telephone answering
13. Principles of service (waiter-waitress)
14. Overview of educational program
15. Materials, equipment, etc. needed by student for program.
16. Behavior - attitude, performance, etc.
17. Industry experience (field trips, etc.)
18. Seasoning & extracts
19. Reading skills
20. Math skills

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: Introduction to the Food Service Industry

LENGTH OF INSTRUCTION

Instructional Topics:

21. Communication
22. Science - biology
23.
24.
25.
26.
27.
28.

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: QUANTITY COOKING

LENGTH OF INSTRUCTION

Instructional Topics:

1. Introduction to quantity cooking
2. Low cost menu preparation & planning
3. Measurement
4. Equipment - recognition, operation, maintenance
5. Food cost
6. Purchasing & store room control
7. Serving
8. Preparation of food
9. Quality & quantity
10. Assembly line techniques
11. Merchandising
12. Aesthetics of service
13. Baking skills
14. Steam kettle cookery
15. Convenience foods
16. Pre-packaging & pre-portioning
17. Understanding the client
18. Cashiering
19. Ware-washing
20. Disposable & non-disposable ware

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: QUANTITY COOKING

LENGTH OF INSTRUCTION

Instructional Topics:

21. Sanitation
22. Leftovers
23. Facility lay out & planning
24. Food chemistry
25.
26.
27.
28.
29.
30.
31.
32.
33.
34.
35.

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: FAST FOOD SERVICE

LENGTH OF INSTRUCTION

Instructional Topics:

1. Concept of operation
2. Service techniques
3. Menu Planning
4. Cashiering
5. Host-hostess
6. Bussing
7. Waiter-waitress
8. Ware washing
9. Food preparation
10. Convenience foods
11. Etiquette
12. Customer-employee relations
13. Personal grooming
14. Sanitation
15. Recipe
16. Measuring techniques
17. Equipment-recognition, operation, maintenance
18. Food cost
19. Purchasing
20. Merchandising

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: FAST FOOD SERVICE

LENGTH OF INSTRUCTION

Instructional topics:

21. Aesthetics
22. Baking skills
23. Salads
24. Soups
25. Dressings
26. Vegetables
27. Poultry
28. Fish
29. Meat
30. Fruit
31. Desserts
32. Decorating-garnishing
33. Sandwiches
34. Beverages
35. Leftovers
36. Seasonal-regional foods (Menu-cost)
37. Facility planning & lay out
38. Design & decorating (facility)
39. Broiling
40. Frying

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: FAST FOOD SERVICE

LENGTH OF INSTRUCTION

Instructional topics:

41. Sauteing
42. Grilling
43. Micro-wave cooking
44. Breakfast
45.
46.
47.
48.
49.
50.
51.
52.
53.
54.
55.

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: RESTAURANT SERVICE

LENGTH OF INSTRUCTION

Instructional topics:

1. Concept of operation
2. Banquet - special functions
3. Service techniques
4. Menu planning
5. Cashiering
6. Host - Hostess
7. Waiter - Waitress
8. Table setting
9. Ware washing
10. Food preparation
11. Convenience foods
12. Etiquette
13. Customer - employee relations
14. Personal grooming
15. Sanitation
16. Recipe
17. Measuring techniques
18. Equipment - recognition, operation, maintenance
19. Food cost
20. Purchasing

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: RESTAURANT SERVICE

LENGTH OF INSTRUCTION

Instructional topics:

21. Merchandising
22. Aesthetics
23. Baking skills
24. Salads
25. Soups
26. Dressings
27. Game
28. Poultry
29. Fish
30. Meat
31. Fruit
32. Desserts
33. Decorating-garnishing
34. Sandwich preparation
35. Beverage preparation
36. Leftovers
37. Seasonal - regional food (menu-cost)
38. Facility lay out and planning
39. Design & Decorating (Facility)
40. Specialty dishes

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: RESTAURANT SERVICE

LENGTH OF INSTRUCTION

Instructional topics

41. Broiling
42. Frying
43. Sauteing
44. Grilling
45. Micro-wave oven
46.
47.
48.
49.
50.
51.
52.
53.
54.
55.

M1.

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE
CURRICULUM
CNF
DEPT: FOOD SERVICE INDUSTRY

COURSE CONTENT

COURSE: SPECIALIZATION Individualized Program - Independent Study

LENGTH OF INSTRUCTION Limited Enrollment - Beyond the Scope of Regular Program

Instructional topics:

1. Specialty Foods
2. Foreign Foods
3. Classes of Foods
4. Game
5. Fish
6. Desserts
7. Wine - liqueur
8. Chaffing Dish
9. Carving
10. Table preparation of Food
11. Ice Carving
12. Supervision
13. Wines
14. Advanced Cooking
15. Food Processing
16. Special Diets
17. Design - Decoration
18. Flambe
19.
20

APPENDIX J

HUMAN RELATIONS PROGRAM FOR 1974-75

TO: All Staff

FROM: Human Relations Committee
by Dave Jenson, Co-Chairperson

DATE: 7 November 1974

SUBJECT: 1974-75 Human Relations Program

In our small group sessions on 15 October, subject areas for this year's program were discussed. The three areas mentioned most often in the eleven groups were:

1. Human relations in industry
2. Interstaff communications
3. Building trust

On this basis, the committee drafted the attached program proposal. I guaranteed the staff the chance to see the program before it was submitted to the East Area Human Relations Steering Committee.

Please read through the proposal. If you have any suggested revisions to offer, please see a committee member before 3:00 P. M. Monday, 11 November.

The committee members are:

Clara Anderson
Eleanor Byrne
Kathy Cleary
Elizabeth Davis
Craig Froke
Wayne Heikkila
Dave Jenson
Ed Karbo
Elise Lyle
Stan Markun
Sally Slice
Mel Sorenson
Dena Tarnowski
Ken Thompson

174

HUMAN RELATIONS PROGRAM
PLAN FOR VOCATIONAL
1974-75

I. Our Human Relations Goal(s):

A. Interstaff Communications: To assist the staff in an attempt to improve interstaff communications.

B. Building Trust: To promote growth in developing trusting relationships among the staff.

C. Human Relations in Industry: To gain an awareness and possible understanding of industry's approach to Human Relations and see whether these approaches can be applied in the classroom for the benefit of students.

II. Our Human Relations Objectives:

Goal "A": Upon completion of this program, staff members will have a better understanding of the problems involved in interstaff communications with a staff of over 150 people working in several educational sites.

The staff will develop the ability to communicate more fully and have a better understanding of the channels and techniques of communications within the school.

Goal "B": Upon completion of this part of the HR program, staff members will have a more complete understanding of what is involved in building trust.

Staff members will have been given a chance to develop skills needed in building trust.

Goal "C": Upon completion of this part of the program, staff members will have been exposed to industry's approach to Human Relations.

III. Actions to Meet Our Objectives:

DESCRIPTION OF SESSION	PARTICIPANTS	MATERIALS	REQUESTED FUNDS
Small groups will meet to compile a list of problem areas in interstaff communications.	All staff	none	none
Small groups will then assemble as a staff in the auditorium. Group facilitators will present questions to the panel of administrators. Administration will respond to questions.	LEADERSHIP	RESOURCE PEOPLE	
	Co-chairpersons and committee members to act as facilitators in small groups	none	
Date: DECEMBER 3			

DESCRIPTION OF SESSION	PARTICIPANTS	MATERIALS	REQUESTED FUNDS
Similar procedure to above. This session will allow us to check what improvement has taken place in interstaff communications. If the same questions occur, it will point the way for additional work.	All staff	none	none
	LEADERSHIP	RESOURCE PEOPLE	
	same as above	none	
Date: APRIL 15			

DESCRIPTION OF SESSION	PARTICIPANTS	MATERIALS	REQUESTED FUNDS
Address to staff by an individual (s) skilled in techniques of building trust. Address to include a working definition of trust and ways one can begin to develop it.	All staff	furnished by speaker and reproduced by school	For speaker $100
	LEADERSHIP	RESOURCE PEOPLE	
Question and answer period to follow. Alternate format may be used dependent on resource person's style of presentation.	Co-chair-person to introduce speaker & initiate question & answer period	Dr. Jerome Bach	
Date: DECEMBER 10			

DESCRIPTION OF SESSION	PARTICIPANTS	MATERIALS	REQUESTED FUNDS
Follow-up session to above. A check to see growth in building trust. Speaker to discuss additional techniques for further development of trust. A self-check evaluation will be developed so each staff member can judge his own progress.	All staff	same as above	For speaker $100
	LEADERSHIP	RESOURCE PEOPLE	
	Co-chair-person	Dr. Jerome Bach	
Date: FEBRUARY 4			

DESCRIPTION OF SESSION	PARTICIPANTS	MATERIALS	REQUESTED FUNDS
A panel of representatives from industry will be invited to discuss industry's approach to human relations.	All staff	?	?
A question & answer period will follow.	LEADERSHIP	RESOURCE PEOPLE	
Date: FEBRUARY 11	Co-chairperson to introduce panel	4 or 5 representatives from industry and industry liason person from Vocational	

It is hoped that after the above Tuesday Released Time Human Relations session, we will be able to have a morning session involving students, staff, and at least one representative from each of the various trade areas for which we prepare students. This session would include an auditorium program for everyone and small group sessions for each trade area.

This program would take place in March.

IV. Some thoughts on how we intend to evaluate the accomplishment of our objectives:

A. Follow-up session, similar to the initial session, will be held in February to see whether the areas of concern voiced in December are still areas of concern.

B. By using materials provided by resource person, including a self-check evaluation, a follow-up session will be held two months later (Feb. 4) to see whether greater trust has begun to be developed among the staff.

C. Program does not lend itself to a formal evaluation.

V. We are: (Human Relations Members)

Clara Anderson
Eleanor Byrne
Kathy Cleary
Elizabeth Davis
Craig Froke
Wayne Heikkila
Elise Lyle
Stan Markun
Sally Slice
Mel Sorenson
Dena Tarnowski
Ken Thompson

Ed Karbo, Co-chairperson
Dave Jenson, Co-chairperson

VI. This program has been checked out with the staff.

_____Yes _____No

APPENDIX K

NEW STAFF ORIENTATION PROGRAM SCHEDULE

SCHEDULE OF MEETINGS
FOR NEW STAFF

1ST SEMESTER 1974-75

DATE	PROPOSED AGENDA
November 5	Organization, rules and regulations Finance
November 19	Organization Rules & Regulations Part 2 Counselors
November 26	Secondary Center Operation High School Operation
November 26	Student Motivation
December 3	Coordinators Adult Division Student Characteristics
December 10	Social Work Special Education
January 7	Building Engineer Manpower Service
January 14	Open for Discussion

APPENDIX L

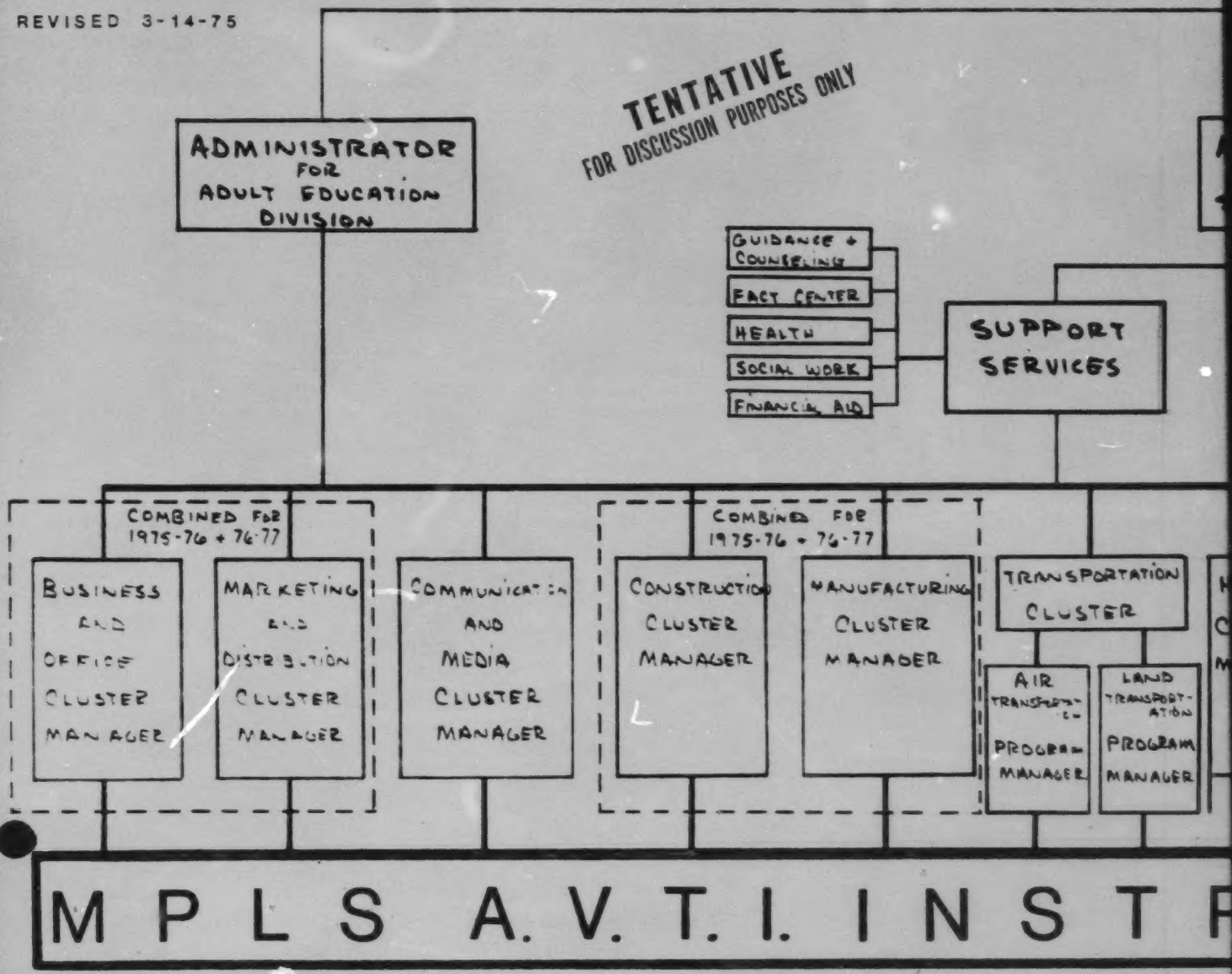
PROPOSED MINNEAPOLIS AVTI ORGANIZATIONAL MODEL

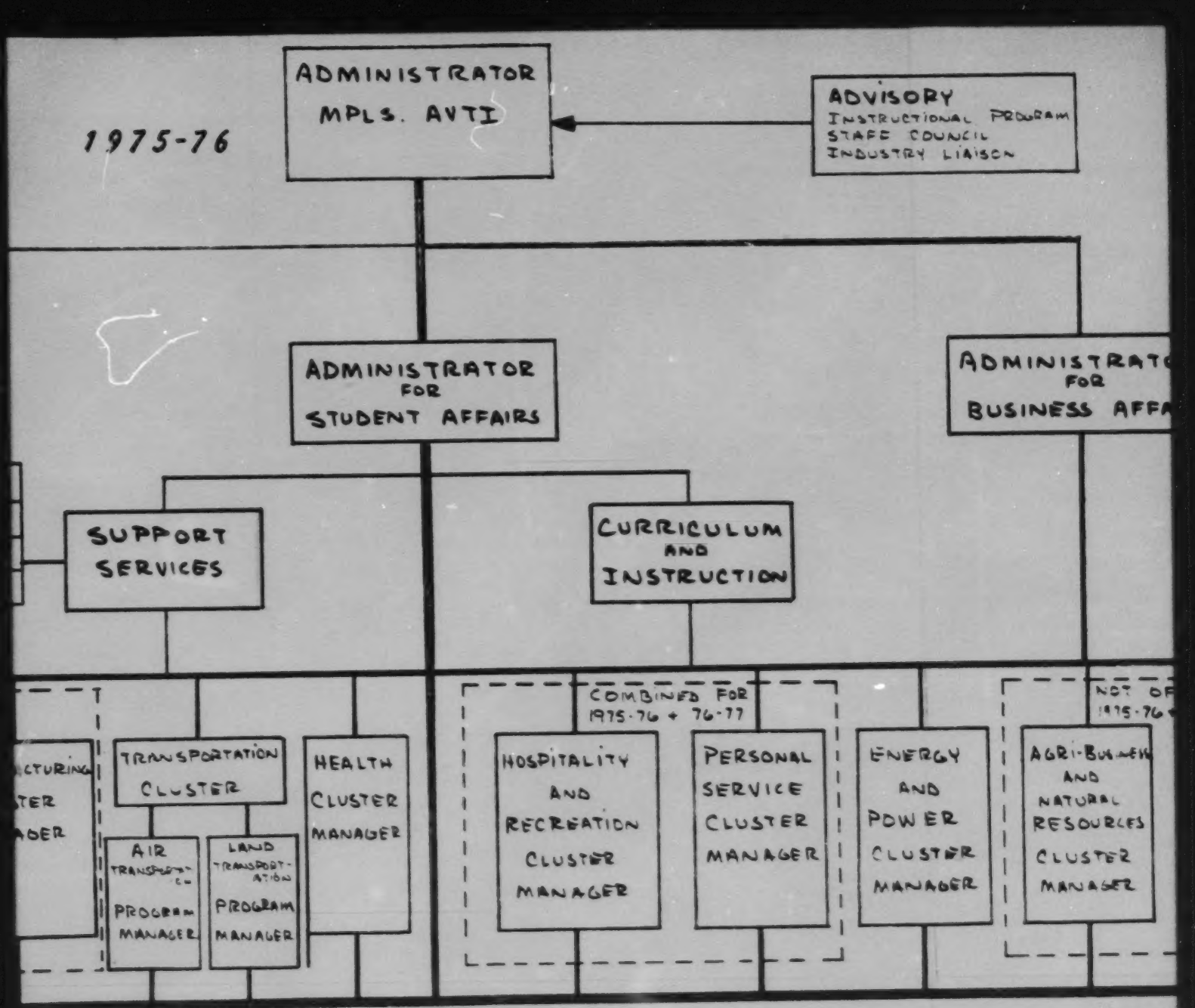
(WORKING COPY)

PROPOSED MPLS AVTI ORGANIZATIONAL MODEL 1975-76

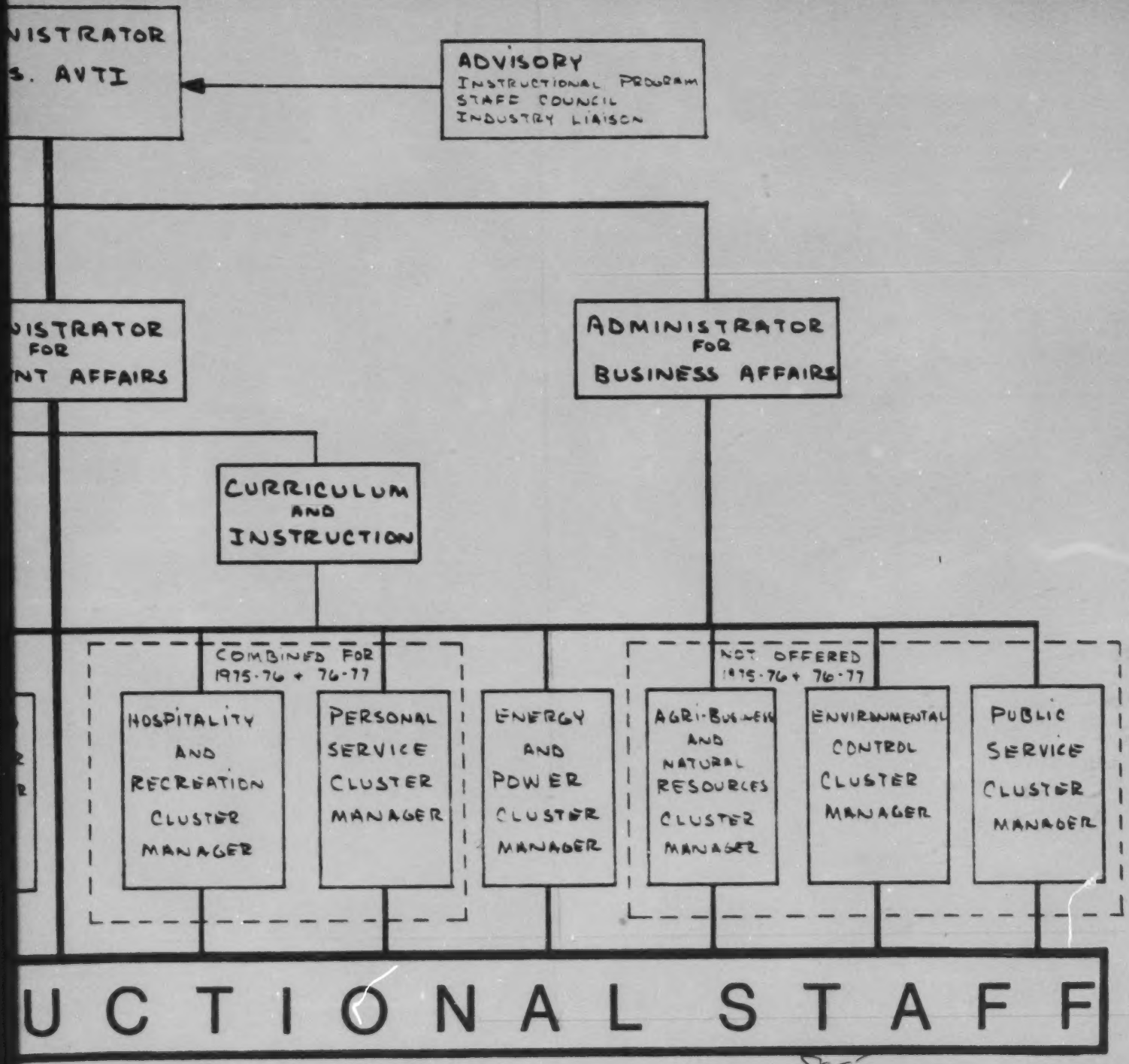
FOR DISCUSSION PURPOSES ONLY

REVISED 3-14-75





NSTRUCTIONAL S


NISTRATOR
S. AVTI
ADVISORY
INSTRUCTIONAL PROGRAM
STAFF COUNCIL
INDUSTRY LIAISON
NISTRATOR
FOR
NT AFFAIRS
ADMINISTRATOR
FOR
BUSINESS AFFAIRS
CURRICULUM
AND
INSTRUCTION
COMBINED FOR
1975-76 + 76-77
HOSPITALITY
AND
RECREATION
CLUSTER
MANAGER
PERSONAL
SERVICE
CLUSTER
MANAGER
ENERGY
AND
POWER
CLUSTER
MANAGER
NOT OFFERED
1975-76 + 76-77
AGRI-BUSINESS
AND
NATURAL
RESOURCES
CLUSTER
MANAGER
ENVIRONMENTAL
CONTROL
CLUSTER
MANAGER
PUBLIC
SERVICE
CLUSTER
MANAGER
UCTIONAL STAFF

APPENDIX M

TOPICAL OUTLINE FOR SECONDARY CENTER TEACHER ORIENTATION PROGRAM

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

For Discussion Purposes Only

SECONDARY CENTER TEACHER ORIENTATION

This outline is designed to provide direction to a series of weekly meetings of teachers involved with the Secondary Center Program, an opportunity to share ideas and problems. Meetings will be held each Thursday from 10:15 to 11:30 a.m. The major areas of emphasis include philosophy, values clarification, human relations, career education, and Adlerian psychology.

I. PHILOSOPHY

A. Concepts

1. Reasons students are enrolled in Secondary Center courses and their possible effects on classes.

2. Dealing with students and their unique problems.

3. The necessity for each student to remain actively involved in class and functioning within their own ability level.

4. Need for curriculum development to be continuous and on-going.

B. Implementing exercises.

1. Concept of democracy using Earl Kelley's "Return to Democracy".

a. Democracy in administrator-teacher relationships.

b. Democracy in teacher-student relationships.

2. Ranking of essential behavior.

a. Administrator - teacher

b. Teacher - student

3. "Unfinished Business" - teaching strategy useful in dealing with students and associates.

4. "The Ability to Change" - Teaching strategy concerning affective behavior of students.

II. VALUES CLARIFICATION

A. What is it?

An internal process where-by an individual takes a look at his own value system.

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

Values Clarification (Cont.)

1. Utilizes a variety of issues through which a small group can interact

2. No value system is wrong.

3. An individual need not reveal his value system.

4. It is NOT sensitivity training or therapy.

5. Provides a basis for decision making according to the individual's value system.

B. How is it applied?

1. Can be used in large or small groups or individually.

2. Values clarification can be applied to students after a teacher has a thorough understanding of the process.

C. Implementation Exercises.

1. Definition of moral stages.

2. Values level teaching.

3. Educational objectives dealing with values level teaching.

4. Examples and suggestions for values level.

III. HUMAN RELATIONS TECHNIQUES

A. "Human Relations Competencies" - Discussion of human relations competencies necessary for students to survive in and outside school.

B. "Removing Barriers to Humaneness in the High School" - Discussion of behavior of administrators and teachers in promoting and restricting human relations.

C. "Listening to the Kids" - Listening to music of the student's culture, discussion of the themes presented, and identification of its implication to class and curriculum.

D. Cultural Differences - Identification of the different cultures to be dealt with in the Secondary Center classroom and some suggestions for dealing with them.

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

Human Relations Techniques (Cont.)

E. Student mixer techniques - Sociogram.

F. Make provisions for including staff in the decision making process - those which affect them.

1. Feeling of belonging - group identity

2. Willingness to accept results

3. Use of expertise and experience of staff.

IV. CAREER EDUCATION

A. Teacher orientation to philosophy and techniques.

B. Application to students.

C. (Above section to be developed)

V. ADLERIAN PSYCHOLOGY - Concepts and Applications

A. A. Ties in closely with Human Relations and Value Clarification

B. To be developed.

APPENDIX N

CURRICULUM REFERENCES AVAILABLE IN THE CURRICULUM RESOURCE CENTER FOR COMMERCIAL FOODS

MINNEAPOLIS AREA VOCATIONAL-TECHNICAL INSTITUTE

TO: COMMERCIAL FOODS DEPARTMENT April, 1975

FROM: DAVE JENSON

SUBJECT: CURRICULUM GUIDES AVAILABLE FROM C. FROKE, CURRICULUM SPECIALIST

641.1 P81 — Popiak, Nicholas. NUTRITION; PART 1, New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1969.

641.1 P81n — Popiak, Nicholas. NUTRITION; PART 2. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1969.

641.5 H63 — Hitchcock, James B. SUPERVISED STUDY GUIDE FOR CHEF. University of Texas at Austin. c1970.

641.5 M78 — Moosberg, Frank O. SIMPLIFIED MANUAL FOR COOKS. c1969, 1973.

641.5 Un3 — U.S. Department of Health, Education & Welfare. COOKS; a suggested guide for a training course. Washington, D.C., The Department. n.d.

641.71 B63 — Bogdany, Melvin. WHAT EVERY BAKER NEEDS TO KNOW; a scrambled program of related science and trade information. In 11 parts, with an answer book. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1974.

641.71 N84 — Notgrass, Troy. SUPERVISED STUDY GUIDE IN BAKING. University of Texas at Austin. c1970.

641.71 So5 — Sommer, Cy. BAKING; related science and trade information. Part I - Ingredients. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1964.

641.71 So5 — Sommers, Cy. THE HOW-TO-MAKE-IT BAKERY BOOK; an illustrated book of bakery make-up for the handcraft baker. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1974.

642 D73 — Dornfield, Blanche E. COMMERCIAL FOODS: MATHEMATICS 1. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory, n.d.

642.5 A17 — Altieri, Nicholas L. HOSPITALITY: a course designed for high school students trained in a multiplicity of occupational service skills relating to the "Food & Lodging" industry. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1968

642.5 B29 BASIC GUIDE FOR FOOD SERVICE TRAINING. Home Economics Section, Division of Vocational Education, Department of Public Instruction. Raleigh, North Carolina. 1965.

642.5 F73 Folsom, LeRoi A. INSTRUCTOR'S GUIDE FOR THE TEACHING OF PROFESSIONAL COOKING. Prepared for the Culinary Institute of America. Institutions Magazine. 1971.

642.5 F98 Furneisen, Barbara K. FOOD SERVICE. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1971.

642.5 F98f Furneisen, Barbara K. FOOD SERVICE; teacher's guide. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. n.d.

642.5 H28 Hatchett, Melvin. FOOD SERVICE. University of Texas at Austin. 1970.

642.5 R29 Rendleman, Gene P. COMMERCIAL FOODS. Volume XIII, 1966 edition of course of study outlines. New Brunswick, New Jersey. Vocational-Technical Curriculum Laboratory. c1966.

642.5 T75 Troutman, Carol. DISHWASHING - BY HAND AND BY MACHINE. New Brunswick, New Jersey, Vocational-Technical Curriculum Laboratory. c1974

642.5 Un3 United States. Department of Health, Education, and Welfare. A POST-HIGH SCHOOL PROGRAM IN FOOD SERVICE SUPERVISION.

642.6 Sch 7 Schubert, Genevieve. A SAMPLE WAGE EARNING TRAINING PROGRAM FOR WAITRESS TRAINING. Milwaukee (Wisconsin) Vocational Technical and Adult Schools. n.d.

642.6 Un3 U.S. Department of Health, Education & Welfare. WAITER-WAITRESS: a suggested guide for a training course. Washington, D.C., The Department. n.d.

664 P81 Popiak, Nicholas. FOOD SCIENCE

APPENDIX O

A BREAKDOWN OF CLUSTERS AT M.A.V.T.I. ACCORDING TO OCCUPATIONS AND/OR PROGRAMS

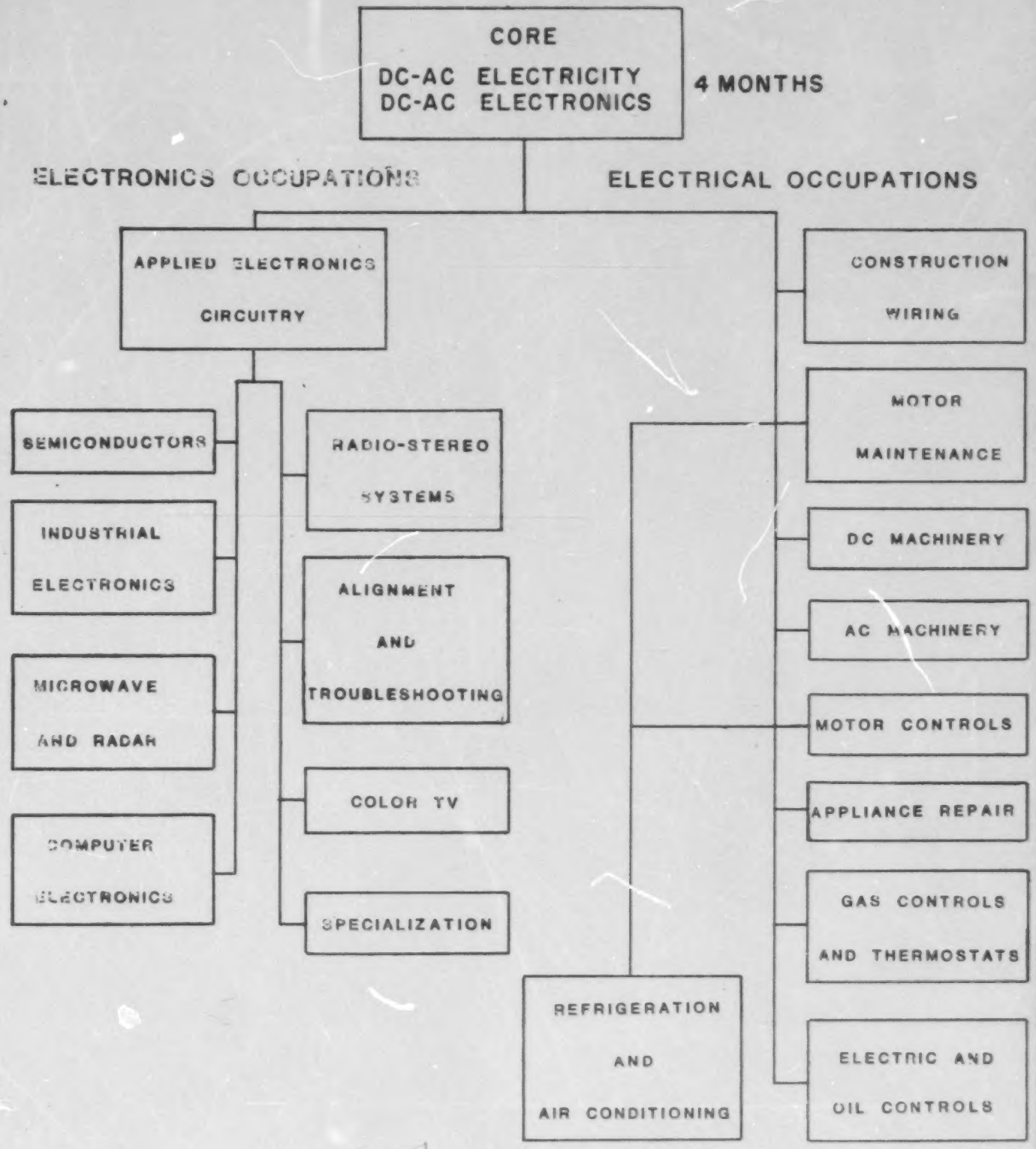
TENTATIVE
FOR DISCUSSION PURPOSES ONLY

CLUSTER	BUSINESS AND OFFICE CLUSTER	MARKETING AND DISTRIBUTION CLUSTER	COMMUNICATION AND MEDIA CLUSTER	CONSTRUCTION CLUSTER	MANUFACTURING CLUSTER	TRANSPORTATION CLUSTER		HEALTH CLUSTER	HOSPITALITY AND RECREATION CLUSTER	PERSONAL SERVICE CLUSTER	ENERGY AND POWER CLUSTER	NATURAL RESOURCES AND ENVIRONMENTAL CONTROL CLUSTER	PUBLIC SERVICE CLUSTER
						AIR TRANSPORTATION PROGRAM	LAND TRANSPORTATION PROGRAM						
PROGRAM/OCCUPATION	1. Gen. Secretarial a. Med. Sec. b. Legal Sec. c. Gen. Steno d. Tech. Sec. 2. Clerk-Typist a. Correspondence Clerk b. Clerk-typist c. Account Clerk 3. Machine Operator a. Bkkg. b. Calculating c. Card Punch (data entry d. Audit Clerk e. Payroll Clerk 4. Combination C.T. & N.O. a. Machine Shtd. b. Receptionist c. Word Process. Operator 5. Traffic Mgmt. 6. Accounting	1. Sales & Merchandising a. Gen. Sales b. Transportation Sales c. Banking & Finance d. Merchandise middle-mgmt. e. Travel Plann. f. Hardware & Home Center g. Insurance h. Office mid-management i. Real Estate j. Industrial Sales	1. Commercial Art 2. Graphic Arts 3. Architectural Drafting 4. Television Communications 5. Media Production Technician	1. Cabinetmkg. 2. Upholstery 3. Apprenticeship lab.	1. Sheetmetal 2. Welding 3. Machine Shop a. Machine Operator b. Tool & Die c. Machine Tool Reconditioning & Repair 4. Patternmaking & Foundry 5. Industrial Model Making 6. Fluid Power 7. Jewelry Manufacturing & Repair	1. Airframe 2. Powerplant	1. Auto Mechanics 2. Import & Compact Car Mechanic 3. Bus & Truck Mechanic 4. Retail & Wholesale Parts Sales	1. LPN 2. Hospital Asst. 3. Hospital Sta. Secretary 4. Additional new program	1. Food Service a. Fast Food Service b. Quantity Cooking c. Restaurant Service d. Specialization	1. Barbering 2. Cosmetology 3. Shoe Repair 4. Apparel Arts a. Tailoring b. Dressmaking	1. Electrical 2. Electronics 3. Radio & TV Repair 4. Refrigeration & Air Conditioning 5. Large Appliance Repair 6. Audio Visual Repair Tech. 7. Bio-medical Electronics Technician	1. Environmental Control Technician 2. Safety Technician	1. Building Maintenance & Custodian 2. Stationary Eng. 3. Commercial Housekeeping

APPENDIX P

A CONCEPTUAL MODEL OF THE ENERGY AND POWER CLUSTER

ENERGY AND POWER CLUSTER



APPENDIX Q

OCCUPATION/SPACE/COURSE MATRIX FOR THE HEALTH OCCUPATIONS CLUSTER AT MINNEAPOLIS AVTI

HEALTH OCCUPATIONS

OCCUPATIONAL CLUSTER

TENTATIVE

FOR DISCUSSION PURPOSES ONLY

No. of Students to be Trained	OCCUPATIONS	Nurse Classroom	Therapy Classroom	Dental Classroom	Nursing - Lab (LPN)	Nurse Aid & Orderly - Lab	Medical - Lab	Therapy - Lab	Electro-Medical - Lab	Dental - Lab	Dental Assistant - Lab	Hospital Ward (Model) - Lab	Nutrition Classroom	Medical Typing - Lab	Filing & Rec[illegible]d Maint. C.R.	Medical Terminology C.R.		
15	Medical Lab Assistant	X					X					X				X		
15	Occupational Therapy Tech.		X					X				X				X		
10	Inhalation Therapy Tech.		X									X				X		
15	X-Ray Technician Assistant	X					X		X			X				X		
10	Radiologic Technician Asst.	X					X					X				X		
20	Hospital Station Secretary	X					X					X		X	X	X		
20	Nurses Aid	X				X						X				X		
	Nurse Orderly	X				X						X				X		
160	Licensed Practical Nurse	X			X		X					X	X			X		
10	Electro-Medical Technician	X					X		X			X				X		
20	Dental Assistant			X							X					X		
20	Dental Lab Technician			X						X						X		

APPENDIX R

PARTIAL EDUCATIONAL SPECIFICATIONS FOR ARCHITECTURAL DRAFTING AT A NEW MINNEAPOLIS AVTI FACILITY

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

ARCHITECTURAL DRAFTING

A. Program Description

Architectural draftsmen may have various duties depending on the type of employer and the position that they occupy. These might be:

1. Making the working drawings (plans, elevations, and details) for a residence or commercial building.

2. Making a "presentation" drawing of a proposed building, to give the owner a pictorial view of the finished structure.

3. Doing "take-off" work to be used in preparing bids which will be submitted by his company.

4. Selecting, and specifying, the most suitable materials to be sued in the construction of a building.

5. Computing sizes of structural members for a building.

Graduates of the architectural drafting course may be employed by contractors (air conditioning, electrical, plumbing or general), building materials distributors, sash and door plants, building product manufacturers, retail stores, manufacturing plants or architects.

The program is 21 months is length. Architectural draftsmen must possess above average intelligence to perform successfully in this trade. They must be able to understand and apply math, science and reading of technical subjects. Artistic ability is not needed in technical specialties but is essential in designing. Graduates of this course should have had courses in algebra, geometry, advanced algebra and physics.

B. Program Objectives

The major objective of this program is to provide students with marketable skills required for entry type jobs as a

draftsman in an architectural office or one of a variety of related drafting offices such as mill work detailing, contractor's office, structural engineer's office, plant layout, steel fabricator, or pre-stress concrete plant.

C. Instructional Content

The following major topics are included in the program:

First Year Curriculum

1. Drafting room practices and orientation
2. Architectural methods and materials
3. Basic technical drawing
4. Presentation techniques
5. Topographic drawing and surveying
6. Planning-light construction
7. Materials and methods of construction
8. Construction drawings: light construction
9. Specifications: light construction
10. Structural systems: light construction
11. Mechanical systems: light construction
12. Electrical system: light construction
13. Technical science
14. Technical mathematics
15. Communications

Second Year Curriculum

1. Drafting room practices and orientation
2. Presentation techniques
3. Planning: building construction
4. Materials and methods of construction
5. Construction drawings: building construction
6. Specifications
7. Structural systems: building construction
8. Mechanical systems: building construction
9. Electrical systems: building construction
10. Communications - advanced
11. Estimating
12. History of American building

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

D. Methods of Instruction

Instruction in this program is highly individualized. Students spend the majority of their time acquiring actual drafting skills on the drafting board. In addition to drafting, students will gain some experience in actual construction skills and will develop a certain amount of skill in architectural model making.

E. Relationship to Other Programs

No special relationship exists with other programs.

F. Organizational Summary

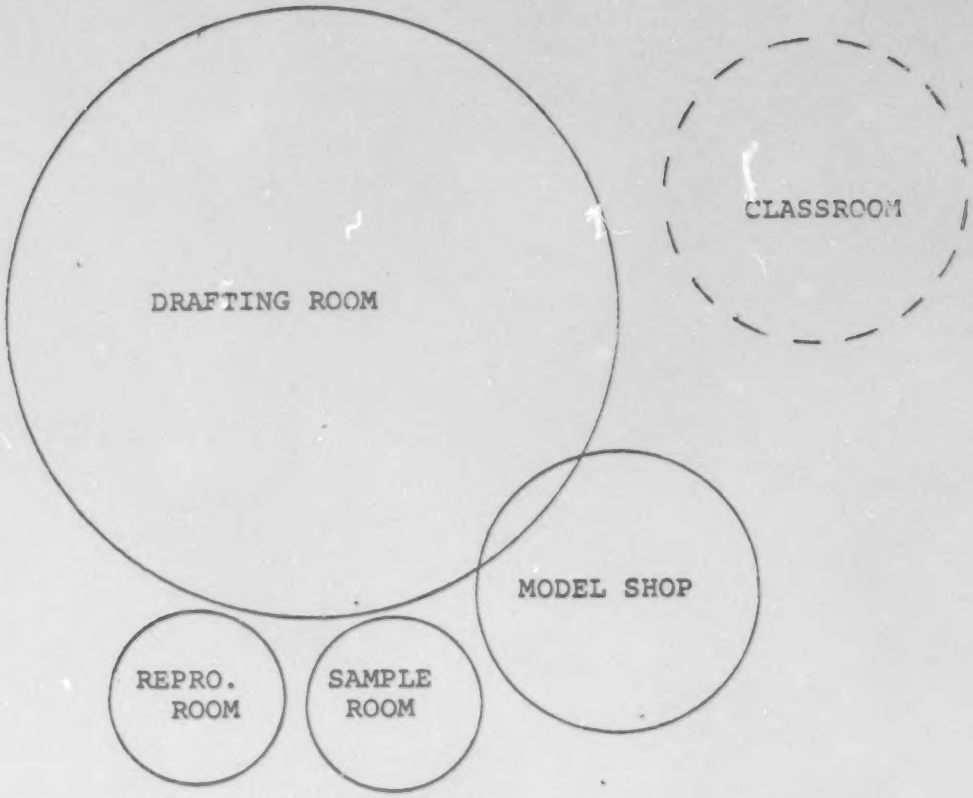
Number of student training stations ----------	26
Number of instructors ----------	1
Instructional square feet ----------	2,600

G. Space Requirements

AREA	SQ.FT.
Drafting Room	1,800
Reproduction Room	150
Sample Room	150
Model Shop	500
	2,600

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

H. Facility Space Requirements



FORM E

ARTMENT OR AREA ARCHITECTURAL DRAFTING, con't

em o.	Quan. Req.	Fix or Move	Description	Electrical Data	Mechanical Data	Estimated Cost
	2	M	Bookcases, 72" x 10" x 42" high			$ 500.00
	4	M	Chairs, stacking type			60.00
						$14,345.00

105

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

FORM E

ARTMENT OR AREA ARCHITECTURAL DRAFTING

Item No.	Quan. Req.	Fix or Move	Description	Electrical Data	Mechanical Data	Estimated Cost
	26	M	Student drafting tables, 37" x 50" w/reference surface and drawer unit.			$ 6,500.00
	26	M	Student stools, adjustable height			520.00
	1	M	Instructor drafting table, L-shaped			400.00
	1	M	Instructor stool, adjustable height			35.00
	24	M	Parallel ruling straight edges			720.00
	3	M	Drafting machines, track type			450.00
	2	M	Light tables, 23" x 28"			320.00
	6	M	Plan files, 34" x 46", 5 drawer			2,400.00
	2	M	Paper cutters, 48" w/safety guard			150.00
	1 lot	M	Special instruments: templates, angles, curves, model, etc.			200.00
	5	M	Air brush unit, w/compressor (1)			250.00
	1 lot	M	Steel shelving, clip-type, 24" deep x 84" high, 40 linear feet			1,100.00
	2	M	Desks, 30" x 60", double pedestal			400.00
	2	M	Chairs, tilt-swivel type w/arms			180.00
	2	M	File cabinets, 2-drawer, full suspension			160.00

106

FORM F

FACILITY DESIGN REQUIREMENTS

PROGRAM ARCHITECTURAL DRAFTING ROOM MODEL SHOP

AREA	HEIGHT	OPENINGS	MECHANICALS	ELECTRICAL	SOUND	CLIMATE	OTHER
500 sq.ft.	9'	40" door	H/C water. 100 psi air.	110v, 100a 208v, 60a	Medium to high noise level.		

107

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

FORM F

FACILITY DESIGN REQUIREMENTS

PROGRAM ARCHITECTURAL DRAFTING ROOM REPRODUCTION

AREA	HEIGHT	OPENINGS	MECHANICALS	ELECTRICAL	SOUND	CLIMATE	OTHER
150 sq.ft.	9'	40" door	Exhaust system.	110v, 60a	Low noise level.	Air-cond.	

108

TENTATIVE
FOR DISCUSSION PURPOSES ONLY

APPENDIX S

SAMPLE CLASS SCHEDULE FOR SHOE REPAIR
FOR 1975-76 INDICATING THE SCHEDULING OF
CURRICULUM DEVELOPMENT TIME.

CLUSTER PERSONAL SERVICE

FOR QUARTER 1

MINNEAPOLIS A T I

PROGRAM SHOE REPAIR

OF SCHOOL YEAR 75-76

INSTRUCTOR PROGRAM

Entry: Quarterly with slotting as vacancies occur.

DATE 5-14-75

INSTRUCTOR	HOUR 1	2	3	4	5	6
WEISNER	← Shoe Repair →				Curriculum	Shoe Repair
RELATEDS:						
(Holmberg) SMALL BUSINESS					Shoe Repair	
(Teeter) COMMUNICATIONS						
ELECTIVES: (Scheduled individually)						
(Evans) DRAWING					X	
(Holmberg) PERSONAL FINANCE						
(Maus) ART		X				
(Reinartson & Hartman) MATH	X				X	X
(Voss) SCIENCE/CHEMISTRY	X	X	X	X		X

CLUSTER PERSONAL SERVICE

FOR QUARTER 2

MINNEAPOLIS A[illegible]T I

PROGRAM SHOE REPAIR

OF SCHOOL YEAR 75-76

INSTRUCTOR PROGRAM

Entry: Quarterly with slotting as vacancies occur.

DATE 5-14-75

INSTRUCTOR	HOUR 1	2	3	4	5	6
WEISNER	←	Shoe	Repair	→	Curriculum	Shoe Repair
RELATEDS:						
(Holmberg) SMALL BUSINESS					Shoe Repair	
(Teeter) COMMUNICATIONS						
ELECTIVES: (Scheduled individually)						
(Evans) DRAWING					X	
(Holmberg) PERSONAL FINANCE						
(Maus) ART		X				
(Reinartson & Hartman) MATH	X				X	X
(Voss) SCIENCE/CHEMISTRY	X	X	X	X		X

CLUSTER PERSONAL SERVICE

PROGRAM SHOE REPAIR

Entry: Quarterly with slotting as vacancies occur.

FOR QUARTER 3

OF SCHOOL YEAR 75-76

DATE 5-14-75

MINNEAPOLIS A T I

INSTRUCTOR PROGRAM

INSTRUCTOR	HOUR 1	2	3	4	5	6
WEISNER	Shoe Repair	Curriculum	←	Shoe Repair		→
RELATED:						
(Holmberg) SMALL BUSINESS						
(Teeter) COMMUNICATIONS		Shoe Repair				
ELECTIVES: (Scheduled Individually)						
(Evans) DRAWING					X	
(Holmberg) PERSONAL FINANCE				X	X	
(Maus) ART						
(Reinartson & Hartman) MATH	X				X	X
(Voss) SCIENCE/CHEMISTRY		X		X		X

CLUSTER PERSONAL SERVICE

PROGRAM SHOE REPAIR

Entry: Quarterly with slotting as vacancies occur.

FOR QUARTER 4

OF SCHOOL YEAR 75-76

DATE 5-14-75

MINNEAPOLIS A[illegible]T I

INSTRUCTOR PROGRAM

INSTRUCTOR	HOUR 1	2	3	4	5	6
WEISNER	Shoe Repair	Curriculum	←	Shoe Repair		→
RELATED:						
(Holmberg) SMALL BUSINESS						
(Teeter) COMMUNICATIONS		Shoe Repair				
ELECTIVES: (Scheduled individually)						
(Evans) DRAWING					X	
(Holmberg) PERSONAL FINANCE				X	X	
(Maus) ART						
(Reinartson & Hartman) MATH	X				X	X
(Voss) SCIENCE/CHEMISTRY		X		X		X

CLUSTER PERSONAL SERVICE

PROGRAM SHOE REPAIR

Entry: Quarterly with slotting as vacancies occur.

FOR QUARTER SUMMER

OF SCHOOL YEAR 75-76

DATE 5-14-75

MINNEAPOLIS A[illegible]T I

INSTRUCTOR PROGRAM

INSTRUCTOR	HOUR 1	2	3	4	5	6
WEISNER	←		Shoe Repair			→
RELATED:						
(Holmberg) SMALL BUSINESS						
(Teeter) COMMUNICATIONS						
ELECTIVES: (Scheduled individually)						
(Evans) DRAWING						
(Holmberg) PERSONAL FINANCE						
(Maus) ART						
(Reinartson & Hartman) MATH						
(Voss) SCIENCE/CHEMISTRY						

APPENDIX T

MEMORANDUM TO STAFF REGARDING CURRICULUM DEVELOPMENT

MEMORANDUM

TO: MAVTI STAFF

FROM: Wayne Nelson & Joe Papatola

DATE: December 18, 1974

- - - - - - - - - - - - - - - - - -

In the interest of making our school more serviceable to students and community, the following five points should be considered by all departments. As we plan for the new building and strive toward curriculum that is efficient and competitive, we are asking that these points be incorporated into the plans of each department. Craig Froke will be of assistance in planning and implementation.

1. ALL PROGRAMS SHOULD BE OPEN ENTRY AND OPEN EXIT

   a. Provisions should be made to allow students to enter any program a minimum of four times during a year. Ideally, a program should be open to new students at <u>any time</u>.

   b. Provisions should also be made for open exit from an educational program <u>into a job</u>. To accomplish this, a variety of entry level jobs in a given trade must be identified and included into the curriculum. (Ideally, a student could become employable at an entry level job in a trade area after one month of instruction.)

2. ALL EDUCATIONAL PROGRAMS SHOULD BE COMPETENCY BASED UTILIZING BEHAVIORAL OBJECTIVES

   a. Emphasis should be placed on exit competencies rather than entry requirements.

   b. The competencies to be taught should be validated through surveys of industry.

   c. We should move toward the exiting student having a listing of competencies rather than a diploma or certificate indicating the completion of a given program.

3. ALL PROGRAMS SHOULD OPERATE ON A 12-MONTH YEAR AROUND BASIS (Beginning this summer where possible)

4. ADVANCED PLACEMENT IN AN EDUCATIONAL PROGRAM FOR PREVIOUS EXPERIENCE OR INSTRUCTION IN A TRADE AREA SHOULD BE GUARANTEED.

   a. Students entering the AVTI from a secondary center program must be given advanced standing depending upon their individual competencies.

   b. A system of credit by examination (written, performance, or both) should be developed for students who already have competencies in a trade area.

5. ALL PROGRAMS SHOULD BEGIN TO UTILIZE INDIVIDUALIZED INSTRUCTION.

   a. Instruction should be geared to an individual's unique goals and background.

   b. Students should progress through an educational program at their own rate.

   c. This does not mean that the teacher's role is that of a dispenser of instructional packages (as is true of some institutions). We must continually be aware that motivation will be necessary from the time our students enter our classrooms until they exit.

   d. The teacher is still the best method of individualizing instruction in spite of what media salesmen say.

ACCESSION NUMBER: VT103578

PUBLICATION DATE: 20JUL76

TITLE: THE DEVELOPMENT AND IMPLEMENTATION OF CAREER EDUCATION IN THE PUBLIC SCHOOLS OF VIRGINIA. FINAL REPORT.

PERSONAL AUTHOR: MOOREFIELD, JEAN A.

DESCRIPTOR: *PROGRAM DESCRIPTIONS; *CAREER EDUCATION; PROGRAM DEVELOPMENT; ELEMENTARY SECONDARY EDUCATION

IDENTIFIER: VIRGINIA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 12P.

ABSTRACT: THIS REPORT DESCRIBES A PROJECT TO INITIATE DEVELOPMENT AND IMPLEMENTATION OF A K-12 CAREER EDUCATION PROGRAM IN THE PUBLIC SCHOOLS OF VIRGINIA. THE PRIMARY PURPOSE OF THE PROJECT WAS TO PROVIDE LEADERSHIP AT THE STATE AND LOCAL LEVELS. A COORDINATING COMMITTEE PROVIDED LEADERSHIP WITHIN THE RESPECTIVE DIVISIONS OF THE MEMBERS AND ASSISTED IN PLANNING AND CONDUCTING WORKSHOPS; A LIBRARY OF CAREER EDUCATION MATERIALS WAS ASSEMBLED; REGIONAL WORKSHOPS WERE CONDUCTED IN VARIOUS LOCATIONS THROUGHOUT THE STATE; INSTRUCTIONAL MATERIALS WERE DISSEMINATED TO EACH LOCAL SCHOOL DIVISION; A SURVEY WAS CONDUCTED TO DETERMINE THE STATUS OF CAREER EDUCATION IN LOCAL SCHOOL DIVISIONS; AND THE STATE SUPERVISOR CONDUCTED ADDITIONAL DIVISION WORKSHOPS, PROVIDED PLANNING ASSISTANCE, AND ATTENDED TWO NATIONAL MEETINGS OF STATE COORDINATORS OF CAREER EDUCATION. EVALUATION OF THE PROJECT WAS SUBJECTIVE, BASED ON RESPONSES FROM LOCAL SCHOOL DIVISIONS. THE OVERALL CONSENSUS OF OPINION WAS FAVORABLE. FUTURE PLANS AND RECOMMENDATIONS FOR CAREER EDUCATION IN THE STATE ARE BRIEFLY OUTLINED. (NJ)

INSTITUTION NAME: VIRGINIA STATE DEPT. OF EDUCATION, RICHMOND.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103 57

FINAL REPORT

The Development and Implementation of Career Education in the Public Schools of Virginia

Research Project in Vocational Education
Conducted Under
Part C of Public Law 90-576

Jean A. Moorefield
State Department of Education
Ninth Street Office Building
Richmond, Virginia 23216

July 20, 1976

VT 103 578

2

FINAL REPORT

The Development and Implementation of Career Education in the Public Schools of Virginia

Research Project in Vocational Education
Conducted Under
Part C of Public Law 90-576

The project reported herein was performed pursuant to a grant from the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgement in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

State Department of Education
Ninth Street Office Building
Richmond, Virginia 23216

July 20, 1976

TABLE OF CONTENTS

Summary . . . . . Page 1

Problem Area . . . . . Page 2

Objectives . . . . . Page 3

Procedures . . . . . Page 4

Evaluation . . . . . Page 6

Conclusions, Implications, Recommendations . . . . . Page 8

Summary

The project operated from July 16, 1974 to August 22, 1975. A full time Supervisor of Career Education was employed on July 16, 1974, and a full time secretary was employed in September, 1974. The project involved the work of a State Supervisor of Career Education who gave leadership within the State Department of Education and to local school divisions in planning, developing, and implementing career education. The Supervisor conducted meetings of a Career Education Coordinating Committee within the State Department of Education, conducted in-service meetings for Divisions within the State Department of Education, conducted regional workshops in various localities around the state, conducted workshops for local school divisions, met with deans and other key professors in colleges of education, and met with other groups such as Richmond Metropolitan Chamber of Commerce, etc. A library of career education materials was assembled.

Problem Area

The concept of career education springs from the conviction of educators that too many youth are leaving the public school, either by graduation or as droupouts, ill-prepared for careers. These youth generally lack either the desire or capacity for higher education, yet they have not received the kind of preparation which would aid them in finding a place in the world of work. Too often, they simply do not know what is available to them, or they are unprepared for productive employment.

The purpose of this project was to initiate the development and implementation of a career education program in the public schools of Virginia that will enable each student to be prepared upon leaving high school to

either become gainfully employed, or to continue his/her education beyond the high school level. The original proposal for this project emphasized that considerable attention be given to staff development to enable teachers to implement career education.

Dr. Sidney P. Marland, U. S. Commissioner of Education, in his speech before the National Association of Secondary School Principals in Houston, Texas, on January 23, 1971, indicated his concern realistically for today's world of work. He said, "Shall we persevere in the traditional practices that are obviously not properly equipping fully half or more of our young people or shall we immediately undertake the reformation of our entire secondary education in order to position it properly for maximum contribution to our individual and national life?" Dr. Marland continued, "To make public education become relevant according to today's needs and the needs of the future, the entire school program must be restructured, and it is becoming increasingly evident that public education should be focused around the theme of career development."

Career education is a comprehensive educational program focused on careers, which begins in kintergarten and continues through the adult years. In the elementary school, students are informed about a wide range of jobs in our society and the roles and requirements involved. In junior high school, students may explore several specific clusters of occupations through hands-on experiences and field observations, as well as classroom instruction. In the senior high school, students pursue a selected occupational area, exercising one of three options--intensive preparation for entry into the world of work immediately upon leaving high school, preparation for postsecondary occupational area, exercising one of three options--intensive preparation for entry

into the world of work immediately upon leaving high school, preparation for postsecondary occupational education, or preparation for a four-year college. Finally, placement into an entry-level job or further education is guaranteed for every student in an effective career education program.

During the period since 1969, numerous journal articles and documents were prepared which were related to the type of educational programs now referred to as "career education." Many of the documents are now available through the ERIC system. The Division of Vocational and Technical Education, Bureau of Adult, Vocational and Technical Education, USOE prepared a document, dated May 10, 1973, entitled, "Career Education: A Model for Implementation." This document contains a list of some of the more significant articles and documents.

Objectives

The primary purpose of the proposed project was to provide leadership at the state and local levels for the development and implementation of a career education program in the public schools of Virginia. This program would include grades k through 12. Specific objectives were:

1. To assemble, review and catalogue materials that have been prepared on career education by USOE, State Departments of Education and other educational institutions and agencies.
2. To provide leadership within the State Department of Education and involve all divisions of the Department that deal with instruction, student guidance, and special services in the planning, developing, and implementing of the career education program.
3. To plan and conduct an in-service training program on career education for local school administrators, teachers, and other local school personnel.

4. To develop and disseminate instructional materials to local school divisions.

5. To assist local school divisions in developing and initiating a program of career education.

Procedures

A full time Supervisor of Career Education and a full time secretary were employed. The Supervisor of Career Education administratively was responsible to the Assistant Superintendent for Instruction. The Supervisor of Career Education conducted the following activities as part of an attempt to develop and implement career education in Virginia:

1. A State Department of Education Coordinating Committee for Career Education was appointed. The members of this Committee represented the Divisions of Special Education, Elementary Education, Secondary Education, Vocational Education, Guidance Services, and the Bureau of Teaching Materials. This Committee advised the State Supervisor of Career Education, gave leadership for career education within their respective Divisions, and assisted in planning and conducting workshops.

2. A library on career education was established at the Media Examination Center of the Division of Special Services within the State Department of Education. This library consists of two sections. One section contains curriculum guides, books, reports, commercial materials, and other such materials. This section of the library is available to any one who wishes to use it. The other section of the library contains materials purchased with staff development money by the State Department of Education, and this section is accessable only to members of the State Department of Education. This section contains materials similar to those which are in the other section, but this section is used primarily

to assist members of the State Department of Education to conduct workshops on career education.

3. Regional workshops were conducted by the State Supervisor in various geographic sections of the state. An attempt was made to conduct these workshops by inviting local school administrators, teachers, and other local school officers to come to a special workshop on career education. However, some difficulty was encountered in using this procedure because few key administrators attended the specially called workshops. Since the successful operation of this project required contacts with and workshops for key administrators, the first plan of attack was modified. Existing schedules of meetings for key administrators were examined, and their leaders' cooperation was solicited. With the cooperation of the various leaders of these pre-planned meetings, the State Supervisor of Career Education conducted workshops for Superintendents' Advisory Council Regional meetings, Supervisory Groups' Regional Meetings, and counselors' regional meetings. Additionally, many key teachers and administrators were present in workshops conducted by the State Supervisor of Career Education in conjunction with the Title IV curriculum workshop at the University of Virginia, at meetings conducted in cooperation with other members of the State Department of Education including representatives from all of the instructional divisions, the Telecommunications Division, and the Federal Programs Office. Additionally, the State Supervisor participated in workshops conducted by various teacher education institutions, and discussed with these institutions their plans for conducting week-long and three-week long summer credit courses on career education. All of the public teacher training institutions in Virginia have

offered such courses this summer and expect to repeat them and or build on them during the coming year.

4. Instructional materials for career education were disseminated to each local school division in Virginia by the Radford and Petersburg Exemplary Career Education Projects. The State Supervisor of Career Education followed up this dissemination by contacting the school divisions to suggest ways in which the materials might be used.

5. A survey was taken to determine the status of career education in local school divisions in Virginia. The results of this survey were compiled, and a list of contact persons for local divisions was formulated. The State Supervisor of Career Education used this list in sending out communications about materials resources and personnel resources available to local divisions to assist with the development and implementation of career education.

6. The State Supervisor of Career Education contacted each school division through a memorandum to offer assistance. Many school divisions requested such assistance, and the State Supervisor held several divisional workshops. Additionally, the State Supervisor of Career Education met with individuals and career education committees in many school divisions to help them plan specific actions to take to implement career education locally.

7. The State Supervisor of Career Education communicated by letter with all of the career education contact persons in all of the other states and territories, and attended two national meetings for state coordinators of career education.

Evaluation

Under the direction of the Assistant Superintendent for Instruction,

the State Supervisor of Career Education, with the advice of the State Career Education Coordinating committee, decided that subjective evaluation, based on activities conducted and responses from local school divisions would be the basis for evaluating the project. Many favorable reports were received (examples are in appendix), and the overwhelming consensus of opinion was that career education in Virginia had greatly been advanced by the operation of this project.

On the basis of these favorable reports, the State Department of Education has included a continance of the project positions in their budget for the next biennium.

During 1976 the General Assembly of Virginia and the State Board of Education incorporated career preparation into the Standards of Quality. It was concluded that a goal of public education must be to enable each student, upon leaving school, to continue successfully a program of advanced education or to enter the world of work.

On August 22, the Supervisor of Career Education left the State Department of Education to accept another position. It was not until May 1, 1976 that the position was filled by a new supervisor. At the present time the office is staffed by a full time supervisor and a full time secretary of career education.

Since May 1, 1976 the Supervisor has made an effort to work jointly with and give leadership to the staff of the Elementary, Secondary and Special Education department. Leadership has also been given to several local school divisions in planning, developing and implementing career education programs.

The Supervisor, also, has visited the three pilot projects in the State and plans for further follow-up have been made.

Initial planning has begun with the Richmond and Virginia Chambers of Commerce in their efforts to assist educators in meeting the educational needs of business, industry and labor.

Since May 1, the Supervisor has attended two National Conferences and plans to participate in three state conferences conducted by three state Universities as well as help conduct several pre-school workshops in local school divisions.

Additional materials and information are being assembled to enlarge upon the career education section in the library.

In conclusion plans are being made by the Supervisor to organize a task force of State Department of Education staff and a state advisory committee to assist in the development and implementation of a state plan and model for career education.

Conclusions, Implications, Recommendations

Career education continues to be the most viable means of achieving the educational reform called for by many of education's critics. In Virginia, career education has been experiencing considerable grass-roots growth, and the operation of this project has given considerable direction and encouragement to this growth during the past year. At the present time 124 of Virginia's one hundred and thirty-six school divisions are active in implementing some portion of career education in elementary and junior high schools.

The direction of public education in Virginia is determined by Standards of Quality and Objectives for Public Schools in Virginia established by the General Assembly, and career education efforts have been incorporated into these Standards. In order to help local school divisions achieve the Standards of Quality, the State Department of Education has published an Action Plan for Achieving Certain Measurable Objectives for Public Education in Virginia 1974-76. For example, one of the Standards states that "By June 1976 at least 90% of high school graduates not continuing formal education should have a job entry skill", and the Action Plan requires that public schools provide students with help in choosing a career objective. Additionally, the Standards of Quality require that each division shall revise and extend annually a five year school improvement plan which contains strategies for reaching the objectives of the school division, and many school divisions have included career education as a vehicle they plan to use in reaching the Standards of Quality.

It is further recommended that the State Superintendent of Public Instruction give increased leadership to career education by establishing the position of Special Assistant for Career Education, and including the Special Assistant for Career Education in all of the policy making and planning meetings of the State Department of Education.

UE 009 678

ACCESSION NUMBER: VT103580

PUBLICATION DATE: 30JUN76

TITLE: VOCATIONAL EDUCATION POSSIBILITIES IN THE PETROLEUM INDUSTRY. FINAL REPORT.

PERSONAL AUTHOR: CRUMRINE, MYRON A.; STARK, FREALYN D.

DESCRIPTOR: *CURRICULUM RESEARCH; *FEASIBILITY STUDIES; *PETROLEUM INDUSTRY; ENTRY WORKERS; VOCATIONAL EDUCATION; *DATA COLLECTION; *SCHOOL INDUSTRY RELATIONSHIP; SECONDARY EDUCATION; MANPOWER NEEDS; CURRICULUM PLANNING

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 81P.

ABSTRACT: THE STUDY WAS CONDUCTED TO DETERMINE THE FEASIBILITY OF DEVELOPING A VOCATIONAL TRAINING PROGRAM AT THE HIGH SCHOOL LEVEL TO EQUIP STUDENTS WITH ENTRY-LEVEL SKILLS FOR EMPLOYMENT IN THE PETROLEUM INDUSTRY. AN INVESTIGATOR WITH EXTENSIVE EXPERIENCE IN THE PETROLEUM INDUSTRY WAS EMPLOYED TO: ACCESS LOCAL MANPOWER NEEDS, INVESTIGATE CURRENT AND PAST TRAINING METHODS, IDENTIFY NECESSARY SKILLS AND DETERMINE THE FEASIBILITY OF IMPARTING THESE SKILLS, IDENTIFY AND ACQUIRE A SITE, SELECT TOOLS AND EQUIPMENT, ASSESS STUDENT AND COMMUNITY INTEREST, AND CONDUCT AN EXPLORATORY COURSE. BASED ON THE DATA COLLECTED, PRELIMINARY DECISIONS WERE MADE, AND AN INTRODUCTORY ONE-WEEK COURSE WAS OFFERED AND COMPLETED BY 67 STUDENTS. IT WAS RECOMMENDED THAT FUNDING BE MADE AVAILABLE FOR DEVELOPING A COURSE IN PETROLEUM PRODUCTION TO SERVE AS A MODEL FOR OTHER GEOGRAPHIC AREAS. THE DOCUMENT INCLUDES A BIBLIOGRAPHY, GLOSSARY, AND APPENDED MATERIALS DEVELOPED IN THE STUDY SUCH AS A LIST OF REQUIRED TOOLS, CORRESPONDENCE FROM INDUSTRY, AND OUTLINE OF THE INTRODUCTORY COURSE. (RG)

INSTITUTION NAME: BRADFORD AREA HIGH SCHOOL, PA.

SPONSORING AGENCY NAME: PENNSYLVANIA STATE DEPT. OF EDUCATION, HARRISBURG. RESEARCH COORDINATING UNIT.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103580

BEST COPY AVAILABLE

FINAL REPORT

VOCATIONAL EDUCATION POSSIBILITIES IN THE PETROLEUM INDUSTRY
(Project No. 19-6010)

Myron A. Crumrine
Frealyn O. Stark

BRADFORD AREA HIGH SCHOOL

BRADFORD, PA.

June 30, 1976

PENNSYLVANIA DEPARTMENT OF EDUCATION

BUREAU OF VOCATIONAL EDUCATION

RESEARCH COORDINATING UNIT

VT 103 580

2

TABLE OF CONTENTS

PREFACE ii

Chapter

I INTRODUCTION 1

Abstract 1
Methods 3

II FINDINGS and ANALYSIS

Investigatory Process 5
Objectives 13

III CONCLUSIONS AND RECOMMENDATIONS 17

BIBLIOGRAPHY 19

GLOSSARY 21

APPENDIX 24

PREFACE

The project has proven to be an interesting and enlightening experience. Of the many and varied problems, the most significant was the frustration of waiting for various agencies to meet and render decisions upon which the fate of the project hinged. Another involves the ability to measure the cooperation of the local oil companies.

Due to an independent and hands off policy maintained by the local oil companies, the merging and moving of home offices from the Bradford area, the extreme work load imposed on oil company executives due to government controls, and certain other political factors beyond our control it became virtually impossible to obtain anything in writing as to the extent of contributions that the course can expect to obtain from local industry. It is the investigator's firm opinion, after contacting executives in the local oil industry, that once the course is in operation, local effort will be forthcoming.

Mr. Marcus Herrold, Consultant for Vocational Education Field Services, Edward Goulding, Supervising Principal of Bradford Area High School, and William L. Kaschube, Chairman of the Vocational Education Committee of the Board of Education have been most beneficial in contributing much time and effort in pursuing the various objectives of this study.

Abstract

In an attempt to comply with a request of the local petroleum industry that a vocational training program be instituted, to supply the industry with trained man power, this project was developed. The major aim was to investigate the possibilities, identify the favorable aspects, and deal with problems which might impede the development of such a project. An investigator with extensive experience in the petroleum industry was employed to conduct the study. Areas to which he was instructed to direct his attention included a determination of man power needs in the industry, current and past training methods, identification of necessary skills, feasibility of imparting these skills, tools and equipment necessary to teach these skills, develop and maintain rapport with the local petroleum industry, identify and acquire a suitable site for training, recommend the necessary renovations to comply with the various regulatory codes, assess student and community interest, and conduct an exploratory course to help increase student interest and knowledge. These problems were approached, many of them concurrently. The study of the man power revealed that over 1/4 of the workers were age 50 and above. A formal training program does not exist nor has one ever existed in this geographic area. Through the utilization of his own experience and interviews with oil company representatives the necessary skill areas were identified. It was determined that the skills could be taught in the proper setting. This setting proved to be an operating oil lease to provide actual hands on experiences for the students. Local industry officials were informed of progress and consulted prior to recommendations concerning the course. They have pledged

support in terms of resource persons, field trips, demonstrations, and tools, equipment and materials. A site has been identified and the various shortcomings relative to the appropriate codes have been identified. Student and community interest has been surveyed and documented. The listed objectives of the project have either been met or the reason for failure to do so has been noted.

It is the opinion of the administration of the Bradford Area High School and the investigator that the project has been properly conducted and that the accumulated data verifies and supports the need for the creation of a course to equip students with entry level skills for employment in the petroleum industry.

Methods

The project was designed to employ an investigator who had extensive experience in the production of crude oil. This type of experience was necessary to make decisions relative to the objectives of the project. Many of these decisions were of a subjective nature based upon his experience, what the industrial contacts indicated their needs were, and how these related to school policy and available funds. The projection of employment opportunities was made with the cooperation of the Pennsylvania Department of Employment Security and personal contact interviews with local oil producers. During the interviews with the oil producers items such as necessary skills, special tools and equipment, major instructional areas of the occupation, availability of field trips, and demonstrations, industry cooperation in terms of loaning and donation of material,and equipment, and cooperative placement of students were discussed by the investigator and the industrial representatives. This information was then compiled from the investigator's notes, evaluated, and used as a basis for recommendations and decisions which were made pertinent to these topics.

Another area with which the investigator was concerned involved the location and securing of a suitable site for instructional purposes. All available locations with even remote possibilities were examined, evaluated and recommendations made based upon their merits or deficiencies. This process of examination and elimination led to the recommendation of the final site.

The investigator also conducted an introductory course for the purpose of exposing students to the various aspects of the petroleum industry. This aided in measuring student interest through questionnaires and interviews. It also provided for the development of additional interest among the students in the petroleum industry. This course was conducted as a one week course consisting of 4 hours of classroom instruction and 2 hours of field experience. This was conducted in grades 9 through 12 for those students whose schedules afforded time for this activity.

A glossary of terms pertaining to the petroleum industry with which the reader may be unfamiliar is included in the report.

Investigatory Process

In the procedure section of the proposal, several activities were outlined which would enable us to realistically assess the situation regarding a course in petroleum production. In this section of the report I shall describe those activities and the results of our efforts.

In the area of man power needs, the investigator worked in cooperation with the Pennsylvania Bureau of Employment Security and the local oil producers to arrive at a projection of present and future man power needs. We were first informed of a man power shortage at a meeting initiated by the Pennsylvania Oil, Gas and Minerals Association requesting that we attempt to include the training of personnel for this occupational area in our vocational-technical program at Bradford Area High School.

With figures supplied by the Bureau of Employment Security relative to the large companies employing personnel in the petroleum and related industries and figures obtained from the companies which indicate the ages of these employees, certain deductive projections can be made. A work force of 985 was employed by these major companies. This figure constitutes 11% of McKean County's total workforce.

Examination of personnel rosters for these companies reveals that approximately 1/4 of these employees are 50 and above. Replacement of these employees alone represents approximately 20 jobs per year. Please refer to the appendix[1] for a complete list of companies and personnel. Other factors which must be considered in assessing future man power needs involve production figures and new recovery techniques which are in an advanced stage of development.

---

[1]See Appendix A.

The Penn Grade crude oil area supplies approximately 20% of the total lubricating oil sold in the nation.[2] Of this amount Pennsylvania is the largest producer with 2/3 of the state's oil being produced in McKean County. To assess the importance to the area, in 1974 the oil production and related industries accounted for 33.6% of the county's industrial production or $105.5 million worth of business.[3] Another item to consider involves the tertiary recovery methods now being tested in the Bradford field. Mr. Ted Geffen of Amoco wrote, "It is estimated that improved methods for oil recovery can, as a target, recover an additional 59 billion barrels from discovered fields."[4] The recovery method being tested locally is referred to by its trade name of Maraflood. This process is described in technical detail in an article found in the Oil and Gas Journal.[5] The results of these experiments to date are outlined in a recent article printed in The Bradford Era. The article describes the site being used, the companies involved, and the results to date. The figures which are pertinent to this study are the statement that this method applied to the 45,000 acres of oil property in the Bradford field has a recovery potential of 5000 barrels per acre. This would result in recovery of approximately 425 million barrels of oil.[6] The significance of this figure can best be

---

[2]Petroleum Engineering Technology, University of Pittsburgh, Bradford Campus: Bradford, Pa., p.1

[3]Pa.. Department of Commerce, Bureau of Statistics, Research and Planning, Pennsylvania County Industry Report-McKean County, Pennsylvania Industrial Census Series, Release Number M-5-74 Harrisburg, Pa. p.16

[4]Ted M. Geffen, "Here's What's Needed to Get Tertiary Recovery Going," World Oil, March 1975, pp.53-57

[5]Journal Staff Report, "Higher Crude Prices Add Sharply to U.S. Reserves." Oil & Gas Journal, January 20, 1975, p.35

[6]The Bradford (Pa.) Era, April 30, 1976, p.1

appreciated by the knowledge that McKean County has produced approximately 480 million barrels since the initial discovery of oil in 1871.[7] These figures added to the employment figures which were previously noted can easily be translated into a period of increased activity and increased employment opportunities, with a projected figure of approximately 13 students completing the course each year the industry will be easily able to absorb these trained persons into the work force of the petroleum and related industries.

To attempt to establish our position concerning the feasibility of adding this curriculum it was decided to assess existing or past training programs. It was discovered that in this geographic area there has never been an organized training program in this industry. There have been individuals trained for various jobs on a one to one basis and skills have been transmitted from generation to generation within families; however no apprenticeship or training vehicle for job progression has ever existed in the Bradford field.

A program financed by CETA funds at Hocking Technical College, at Nelsonville, Ohio was brought to our attention. After corresponding with school officials, our investigator visited Nelsonville for a first hand look at the program. He found little of use to us in this course. They had a bus, met in a classroom, and then traveled in the area to see whatever was occuring regarding oil production in the area that day. For example, if a well was being fractured or drilled they would visit the site.

---

[7] Petroleum Engineering Technology, p.1

There were no hands on experiences connected with the program. The investigator was not interested in pursuing a similar approach in our course.

The investigator compiled a list of skills which the oil field mechanic should possess. These skills are broken down into major areas of the occupation. A list of these skills may be seen in the appendix.[8] This list of skills will provide the nucleus of the curriculum which we shall develop in Phase II of the project.

These skills reflect the change in direction our project has taken with the additional input of the investigator. Initially our thoughts were aimed toward skills which could be imparted in a shop-laboratory setting. The investigator who was hired is an active oil producer. His thoughts were aimed toward instruction based upon the everyday problems of an operating oil lease. Upon examination of what could be taught in a building (shop-laboratory) vs. an operating lease it was determined that the scope of instruction could be significantly broadened. This idea is also in agreement with the hands on philosophy of vocational education. Therefore our efforts were concentrated toward securing an operating oil lease. Tools and equipment necessary to teach the skills which have been identified as feasible and desirable can be found in the appendix.[9]

---

[8]See Appendix B
[9]See Appendix C

Since this project was the result of an industry suggestion it has been our feeling that the industry representatives should be appraised of the efforts and progress of the project. This has been done with representatives of all the major oil companies and several independent producers being furnished copies of the various projects which were submitted for approval. This, plus a continual appraisal of events of the investigation as well as requests for assistance, when necessary, have kept communication channels both open and active.

In addition to this the investigator conducted personal interviews with representatives of the oil companies, independent producers, and related industries. A copy of the questionnaire used in these interviews if found in the appendix.[10] From these contacts lists of contributions such as field trips and resource people were compiled.[11]

One problem which presented itself during these interviews and in subsequent communication was the oil companies' reluctance to put a dollar estimate upon pledged support in writing. Verbal assurances that "Let us know what you need, when you need it, and we'll help you out," were almost unaminously given by the companies, but no one would put this in writing. This has already manifested itself in our recent purchase of an electric jack, in which a large discount was allowed and some accessories donated to permit us to purchase this item with funds from this project. We have also received many letters of support from our

---

[10] See Appendix D
[11] See Appendix E

industrial contacts. Copies of these letters may be found in the Appendix.[12]

It is our opinion that while we are unable to document industry support as strongly as we would prefer that industry interest is sincere and the verbal commitments will be honored.

After the initial meeting with industry representatives an immediate problem was recognized concerning where such a course might be taught. As a comprehensive high school building funds available to AVTS schools are not accessable to us, therefore, construction was virtually eliminated. Real Estate agents were contacted, the industrial representatives contacted again, board members, and other interested parties were queried as to a possible instructional site. Numerous sites suggestions were made and all of these were investigated. A few of these could be rejected for various reasons after a cursory inspection. A list of the properties which were studied in depth is attached.[13] The features of each and the comments of the investigator are included in this list. After this investigation we made our recommendation. The site which was recommended provides us with the most favorable situation we were able to find to include the training activities which we wish to include in the curriculum. This site has sufficient space to conduct these activities and the building which will be used for indoor activities will meet all state standards in regard to safety and school code requirements.

In a related activity which was occuring concurrently with the investigatory activities detailed up to this point was the assessment

---

[12]See Appendix F.
[13]See Appendix G.

of student interest. The first step was a survey of the entire student population (Grades 10-11-12) with regard to employment interests. Of the 1207 students surveyed 104 indicated an interest in the petroleum and related industries. A copy of this questionnaire is included.[14]

In the text of the proposal a nine week exploratory course was outlined and planned to help measure and stimulate student interest. After a more detailed study, consideration of the investigator's recommendation, and calculation of the number of students available for such a course, the format was changed. This involved a change to 9 one week courses of a broad exploratory nature.[15] The change enabled us to involve many more students and also include grade 9 in our two junior high schools.

A total of 67 students enrolled in and completed this one week exploratory course. Various scheduling problems limited the enrollment, such things as all sophomores being scheduled full and not having a study hall every day to take the course, vocational students already enrolled in a trade and industrial program not having free time in their schedule, and an active work-study and work release program eliminated many other potential candidates. A total of 47 students made application for admittance to the course planned for the coming school year.

A questionnaire[16] was administered to the students who completed this course to assess the results in terms of increased knowledge, interest, knowledge of careers, and other questions.

---

[14]See Appendix H
[15]See Appendix I
[16]See Appendix J

Of the 67 questionnaires given to students 52 were retrurned for 77.6% rate of return. A scale of 1 low to 5 high was used for the first 5 questions. The results of the returns are as follows:

1. To what extent has this course increased your knowledge of the petroleum industry? 3.69

2. To what degree has participation in this course influenced your interest in a career in the petroleum industry? 3.82

3. To what degree has participation in this course increased your knowledge of careers in the petroleum and related areas of employment? 3.32

4. When applicable to what degree were safety procedures and practices emphasized and applied? 4.32

5. To what extent would you recommend this course to other students who have not had the opportunity to enroll in it? 4.40

Another question which is significant involved a desire to enroll in the year long course for next year. Responses to this question were 38 yes, 11 no, and 3 undecided. In light of the fact that practically 1/3 of our population were not able to enroll in the course because of scheduling problems, we are quite satisfied with student interest and response. When the announcement was made that applications were being accepted for next year's course, 47 students responded. This occurred during the last two weeks of the school year with students already scheduled for next year in other courses and in spite of the many distractions of the year's end activities.

Objectives

The following information relates to activities which specifically apply to the achivement of the objectives of the project.

1. To determine and list the actual employment opportunities for trained oil field personnel:

   Through the investigator's interviews with major oil company executives, personnel officers, The Pennsylvania Bureau of Employment Security, and independent oil producers, employment opportunities in the Bradford oil field were compiled. These are referred to on page 5 of this report, and listed in the Appendix.[17]

2. To determine what skills should be apparent in the modern oil field mechanic:

3. To indicate which skills can be imparted in a classroom (Shop-laboratory) setting:

   Through interviews with independent oil men and foreman for major oil companies it was determined the skills that the companies demand in the oil field personnel which they wish to hire. These skills can be taught in an actual operating oil lease situation and not in a classroom setting. Refer to the list in the Appendix.[18]

4. The amount of space necessary to teach these skills will be calculated:

5. To examine existing facilities and make recommendations pertaining to leasing vs. renovation:

   Real estate agents and oil men were contacted as to the

---

[17]See Appendix A.
[18]See Appendix B

availability of buildings and property. When completed this list was evaluated and a recommendation made to the vocational committe of the area school board.[19]

6. To compare the recommended facility with applicable state regulations to insure compliance in regard to size, lighting, safety, etc:

   In designing this course to encompass an actual working oil producing lease, OSHA safety requirements, Department of Environmental Resources regulations, and Department of Labor & Industry regulations, will be observed and adhered to in all future construction and maintenance developments. With an operating lease consisting of approximately twenty-five acres of mineral rights and eight acres of surface we have no problems as to size.

7. To explore field opportunities available to aid in instruction and list appropriate field trips and demonstrations:

   A survey of the local oil industry and related industries was made and the various field trips and demonstrations are listed in the Appendix.[20]

8. To identify possible cooperative employment placement of senior students:

   Due to this course being only in the initial planning stage and having no senior students available for graduation very little has been done concerning employment placement. This is one of the objectives of Phase II. The oil industry has indicated a willingness to the investigator to hire students enrolled in the oil production course upon graduation.

---

[19]See Appendix G.
[20]See Appendix E.

9. To solicit cooperation from oil producers in regard to loaning equipment for instruction purposes, donation of equipment, and making personnel available for lectures and demonstrations.

An attempt was made to solicit some definite statement from the major oil companies in regard to the amount or definition of equipment that they would make available for instruction purposes. This was not possible due to the reluctance of local executives to put anything in writing. A list of personnel available for lectures and demonstrations is enclosed in the Appendix.[21]

10. To survey and determine student interest through interest inventories, aptitude tests, surveys and personal interviews.

Student interest was first determined through a survey conducted in the local high school. One hundred-four students indicated an interest in the petroleum industry.[22] Of this number sixty-seven availed themselves of a nine week exploratory course[23] conducted by the investigator. At the end of this course a student evaluation questionnaire,[24] was administered. Forty-seven students expressed a desire to enroll in the oil production course for the year 1976-1977.

11. To determine the extent of industrial interest, cooperation, and support of a vocational training program with the use of a survey and individual interviews.

This was accomplished by the investigator conducting personal interviews with major company executives and independent oil

---

[21]See Appendix E.
[22]See Appendix H.
[23]See Appendix I.
[24]See Appendix J.

producers. At this time a survey sheet,[25] was left and a request for a testimonial letter was made. These letters are now on file in the investigator's office and are included in the Appendix.[26]

12. To list the special tools and equipment unique to the industry, and a master list of essential items for basic instruction and make recommendations concerning the purchase of these items.

A master list of tools and equipment and also a list of large tools and equipment necessary for the instruction of an oil production course are included.[27] Some funding was made available due to a transfer in the original estimated budget proposal so that a new electric pumping jack could be purchased for this course.

---

[25]See Appendix D.
[26]See Appendix F.
[27]See Appendix C.

Conclusions and Recommendations

The activities and findings of the study which have been completed are outlined in the previous material. It is our contention that sufficient evidence was presented to demonstrate several things:

1. That interest exists on a local level among oil producers and related industries in the creation of the proposed course.
2. That the local companies will support such a course in terms of field trips, demonstrations, resource persons, and donations or loan of tools, equipment and materials.
3. That such a course is feasible as a vocational technical offering on a secondary level.
4. That an ideal site exists in close proximity to the high school.
5. A suitable instructor has been located. He has completed an evaluation interview at Penn State and his competency has been certified. In addition he has completed one year of college.
6. That sufficient interest is evident among students to warrant the addition of the course.
7. Employment opportunities are available at the present rate of field activity and even the addition of our training program may not provide sufficient man power if projected activity becomes a reality.
8. The Bradford Board of Education is prepared to support such a course with signigicant local effort at this time and prepared to assume the full burden of the program when the project funding has terminated.

In light of these findings we recommend that:

1. Funding be made available for the development of the course in petroleum production.
2. This program be used as a model for other areas where oil is produced both on a state and national level.
3. That an effort be made by the Department of Vocational Education to have the procedures for funding requests emphasized in an administration course, through the vocational training institutions.
4. Other geographic areas be encouraged to expand efforts to develop courses which may have benefits for local employment opportunities for students.

BIBLIOGRAPHY

Selected Bibliography

The Encyclopedia of Careers and Vocational Guidance, 1975 ed. Vol.1. "The Petroleum Industry," by Mary Jane Burton.

Geffen, Ted M. "Here's What's Needed to Get Tertiary Recovery Going." World Oil, March 1975, pp.53-57.

Journal Staff Report. "Higher Crude Prices Add Sharply to U.S. Reserves." Oil & Gas Journal, January 20, 1975, p.35

Pennsylvania County Industry Report-McKean County. Harrisburg: Bureau of Statistics, Research and Planning of The Department of Commerce, Release Number M-5, 1974.

"Phase II Testing on Lawry Lease starts" The Bradford (Pa.) Era, 30 April 1976, sec.1, p.1.

U. S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook. Washington, D.C.: Government Printing Office, 1974.

Petroleum Engineering Technology, University of Pittsburgh, Bradford Campus: Bradford, Pa.:

GLOSSARY

Cable Tools, A method of percussion drilling where a hole is literally pounded into the ground--machines such as standard rig, parkersburg, national, and spudder are in this category.

Coring and Chipping, Methods of extracting oil producing sand samples from a well for laboratory analyzing.

Five-Spot, Method of developing a lease in a checker-board pattern by drilling four intake wells with a single producing well in the center.

Fracturing, The actual cracking or breaking of the oil bearing sand formations by injecting a fluid under tremendous pressure on the sand formation.

Injection or Intake Well, Well used to carry water to the oil bearing sands for the purpose of forming and moving an oil bank to the producing well.

Pony Beam Jack, Above ground equipment located over producing oil well and used for pumping the oil well in connection with a central pumping power.

Producing Well, Well used for the purpose of obtaining the crude oil from the oil bearing sand formations.

Pulling Crew, A group of production workers consisting of one tractor driver and one or two men with duties under the pulling pole.

Pumper, Name given to the oil field production worker who has the responsibility of checking the oil producing wells for maintenance problems and correct pumping schedules. This may be on pony beam jacks connected to a central pumping power or on individual units such as electric jacks.

Rotary, A drilling machine employing a turning and grinding method of drilling.

Roughneck, Name given to the non technical drilling crew worker.

Roustabout, Name given to the non technical production oil field worker.

Secondary Recovery, Method of oil recovery employing the five-spot method of drilling and water injection.

Shooting, The process of creating a cavity in the oil bearing sand, after a well has been drilled, by setting off a charge of nitro-glycerin that had been lowered to the sand formation.

Spudder, A drilling machine employing a percussion method of drilling.

Stationary Engineer, Oil Field production worker with specific duties in a water plant, central pumping power, or pump station such as minor machinery maintenance; operation of engines, motors, powers, triplex pumps, centrifugal pumps, filters, chemical feeders, etc.; reading and recording of gauges, meters, and recording charts.

Tertiary Recovery, Third method of oil recovery imploying such means as combustion, steam, maraflood, etc.

Working Barrel, The actual sub surface pump located near the bottom of a producing oil well and used to pump the crude oil to the surface.

APPENDIX A

COMMONWEALTH OF PENNSYLVANIA
BUREAU OF EMPLOYMENT SECURITY

McKEAN COUNTY - Feb. 1976

Company Name	Total No. Of Employees	Female Employees
Forest Oil	3. Office	17
Minard Run	35	2
Pennzoil	258	7
Quaker State	228	17
Witco	393	45
North Penn Gas	69	25
National Fuel Gas	20	4
RELATED INDUSTRIES		
B.M.W.	67	2
Bovaird & Co.	26	3
Bradford Pipe & Supply	33	4
Lloyd Smith	12	2
Birdwell (Division of Seismograph Service Corp.)	13	
Haliburton Services	71	
Piper Well Service	15	

INDEPENDENT OIL PRODUCERS

	Employed	Age
S. H. ELDER & CO		
Pumper-Roustabout	1	61
	1	62
Pumper	1	60
	1	23
Roustabout	1	58
Tractor Driver	1	58
VAN TINE OIL CO.		
Foreman-Pumper-Roustabout	1	56
Pumper-Roustabout	1	62
F. O. STARR, JR.		
Owner-Operator	1	48
Pumper-Roustabout	1	25
Pumper-Roustabout (P.T.)	1	54
ROBERT W. LAWRENCE		
Foreman-Pumper-Roustabout	1	53
Pumper-Roustabout	1	70
HERZOG OIL FIELD		
Pumper-Roustabout	1	72
DEPETRO & ENGEL		
Foreman-Pumper-Roustabout	1	63
Roustabout (P.T.)	1	70
JOHN DOBSON		
Owner-Operator	1	68
E. E. CARLSON		
Owner-Operator	1	55
H. E. GREER EST.		
Owner-Operator	1	69
G. L. RHODES		
Owner-Operator	1	51
R. J. BRENNAN		
1 Pumper-Roustabout	1	67
NED SCOTT		
1 Owner-Operator	1	50

WITCO CHEMICAL CORPORATION

DEPARTMENT	BIRTH YR.	AGE	NO. OF MEN
Production	1911	65	7
	1912	64	8
	1913	63	12
	1914	62	6
	1915	61	7
	1916	60	7
	1917	59	6
	1918	58	12
	1919	57	10
	1920	56	7
	1921	55	9
	1922	54	10
	1923	53	9
	1924	52	9
	1925	51	9
	1926	50	11
	1927	49	9
	1928	48	3
	1929	47	7
	1930	46	6
	1931	45	7
	1932	44	6
	1933	43	7
	1934	42	7
	1935	41	3
	1936	40	2
	1937	39	4
	1938	38	9
	1939	37	9
	1940	36	5
	1941	35	4
	1942	34	9
	1943	33	4
	1944	32	9
	1945	31	5
	1946	30	6
	1947	29	11
	1948	28	13
	1949	27	4
	1950	26	4
	1951	25	5
	1952	24	4
	1953	23	4
	1954	22	10

PENNZOIL

	EMPLOYED
Pumper	58
Stationary Engineer W.P.-Pumper	3
Pumper-Stationary Eng.W.P.	18
Stationary Engineer W.P.	5
Head Roustabout	6
Roustabout	63
Roustabout-Sts. End.W.P.	2
Welder "A"	3
Welder "B"	1
Mechanic "A"	7
Mechanic "B"	1
Machinist "A"	1
Machinist "B"	1
Electrician "A"	3
Tractor Drivers	24
Truck Driver	1
Probationary Laborers	19
Maintenance Man	1

QUAKER STATE		AGE
Pumpers	1	23
	1	24
	1	25
	1	29
	1	26
	1	43
	1	53
	2	54
	1	55
	2	59
	2	63
Head Roustabout	2	61
Roustabout	1	23
	1	27
	1	37
	1	41
Bulldozer Operator	1	47
Welder	1	43
Mechanics	1	25
	1	38
	1	58
	1	63

APPENDIX A

Oil related job skills that will be taught in a 3 year oil production course at the Bradford Area Senior High School operating oil lease.

1. Tool recognition and correct useage
2. Pipe fitting
3. Oil well pulling
4. Well plugging
5. Pumping jack maintenance and erection
6. Pumping
7. Roustabouting
8. Tractor and bulldozer operation
9. Trouble shooting an internal combustion engine
10. All types of oil field maintenance problems
11. Well drilling
12. Basic oil field welding
13. Basic oil field carpentry
14. Basic oil field electricity
15. Basic oil field mechanics

Note: In all of the above skill areas good work habits and safety will be stressed.

APPENDIX C

TOOLS

1 Ridgid 1" to 2" Pipe Threaders No. 65R

1 Ridgid 1/4" to 1" N.C. Bolt Dies No. 00R-3

1 Ridgid Hvy. Duty Pipe Cutter No. 2

1 Box Hvy. Duty Wheels for above cutter No. 2

1 Ridgid Lon Grip Pipe Reamer #2

1 Gal. Oster Bestoil Cutting Oil

1 Ridgid Yoke Bench Pipe Vise No. 23

1 Columbian Malleable Iron Combination Pipe Vises No. 205

1 Set Standard N.C. Hand Taps-High Speed Steel
1 ea. of both taper and Bottoming taps
1/4, 3/8, 1/2, 5/8, 3/4, 7/8, and 1"

1 Set Standard Taper Pipe Taps-High Speed Steel
1/8, 1/4, 3/8, 1/2, 3/4, 1, 1 1/4, 1 1/2, 2"

1 Set Little Giant Screw Extractors No. 1815

1 Set Little Giant Screw Extractors No. 1822

1 Screw Pitch Gage for pipe and nuts and screws-Brown & Sharpe No. 632

1 Jobbers Straight Shank High Speed Steel Twist Drill Set 1/16" to 1/2" by 64ths.

1 Set 1/2" Straight Shank High Speed Steel Twist Drills
9/16", 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1" & 1 1/16"

1 Weller Soldering Gun No. S-500

1 1 lb. spool Acid-Core Solder

1 1 lb. spool Plastic Rosin-Core Solder

1 Hvy. Tin Snips-12 to 14"

2 Hvy. Duty Lever Grease Guns (Cartridge Type)

2 Plews Force Feed Oilers (1½ Pt.) No. N-3375

1 Plews Force Feed Oilers (1 Qt.) No. 845-DWS

1 Plews Force Feed Oilers (1 Qt.) No. 860-DWS

2 Galvinized Combination Measures (2 Qt. Cap.)

1 Imperial Copper Tubing Flaring & Cutting Tool Kit

1 Lufkin Royal Ni-Clad Steel Tape No.436-100'

4 Lufkin Mezurall Nickel Plated Tape-Rules No. 9210-10'

1 Carpenter's Steel Square 2'-24" x 2" Body

1 24" Aluminum Level

1 Ratchet Bit Brace-10" Sweep

1 Auger Handle

1 Auger Bit set-1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16 and 1"

1 Expansive bit & Cutters 7/8 to 1 3/4 & 1 3/4 to 3"

1 Set Ship Augers 1/2", 5/8, 3/4, 7/8, 1"

1 12" or 14" Jack Plane

1 Set Wood Chisels 1/4, 3/8, 1/2, 3/4, 1, & 1½"

3 Phillips Screwdrivers

6 Regular Screwdrivers

1 Pr. Channel lock pump pliers

2 Lineman's Hvy. pliers

1 Lineman's Insulated Side Cutting Pliers

1 Diagonal Cutting Pliers

1 Needle Nose Pliers

4 Cold Chisels 1/2, 5/8, 3/4, 1"

3 Half Round Chisels 1/8, 1/4, 3/8

3 Diamond Point Chisels 1/8, 1/4, 3/8

1 Set Drive Pin Punches (All Sizes)

2 Center Punches

2 True Temper Ripper Hammers (Bell Face-St. Claws)

3 True Temper Ball Pein Hammers (Different sizes)

4 Lead Hammers

2 Flint Edge Double Bit Axes

1 Disston Pruning Saw 24" Blade

1 26" Hand Saw-Crosscut

1 26" Hand Saw-Rip

1 Simonds One Man Crosscut Saw No. 111 4½'

2 Crescent Hacksaw Frames No. 1047

12-10" High Speed Tungsten Hacksaw Blades

4 Norton Crystolen Scythestones 12" No. TJ4

2 Mill Files Single Cut Flat 6"

2 Mill Files Single Cut Flat 8"

2 Mill Files Single Cut Flat 12"

2 Mill Files Single Cut Flat 14"

Flat Files Double Cut Same Amount as above

Round Files Same Amount as Above

Half Round Files Same Amount as Above

Handles For Above Files

1 1/2" Sq. Drive-12 point-Socket Wrench Set
Note: Check On No. 1001 Williams Superchest Socket Wrench & Wrench Set

2 Crescent Adjustable Wrenches in the following Sizes 4,6,8,10,12 & 18 inches

Ridgid Straight Pattern Pipe Wrenches 1-6"; 1-8"; 1-10"; 1-12"; 1-14"; 1-18"; 2-24"; 1-36"

1 12" or 14" Monkey Wrench

2 Vise-Grip Wrenches 1-7" & 1-10"

2 Round Point-Solid Shank-Contractors' Weight Shovels

1 Square Point-Solid Shank-Contractors' Weight Shovels

1 Post Hole Digger

1 Round Point Telegraph (Digging) Bar

1-5/8 x 18"; 1 3/4 x 24" Wrecking Bars

2 5' Pinch Bars

1 Railroad or Clay Pick

1 Mattock

1 No. 10 True Temper Brush Hook

2 Scythe Blades (1-light weight weed) (1-Lightweight brush)

2 Snaths

1 12 lb. Cross Pein Sledge

1 14 lb. Cross Pein Sledge

6 Chains 1/4 3/8 1/2 9/16" Different lengths

1 Snatch Block 10" Dia. Pulley

1 1½ to 2 Ton Capacity Coffin Hoist-Chain

2 22" Track Jack-15 Ton

1 1½ Ton Hydraulic Jack

2 Set of Tubing Tongs (2" Pipe)

1 Set of Tubing Tongs (2" Collar-Backup)

2 2" Tubing Elevators

2 5/8" Rod Evevators

2 5/8" Rod Wrenches

1 Neilson Socket (Fishing)

1 Set Rod Jars

1 2" Pipe Driving Head

1 24' Single Ladder (Wood)

1 8' Mechanics' step ladder

2 Putty Knives

2 Paint or Wall Scrapers

1 Set 3 x 2 Rope Blocks

1 GE AC Volt Ammeter No. GE AK-4

1 3/8" Hvy. Duty Portable Electric Drill

1 1/2" Hvy. Duty Portable Electric Drill

1 3/4" Hvy. Duty Portable Electric Saw

1 6"-8" Hvy. Duty Ball Bearing D.E. Bench Electric Grinder

1 15"-20" Floor or Bench Type Drill Press

1 Two Stage Air Compressor with Tank, Hoses, & Blow Guns

1 Purox Welding & Cutting Outfit (Complete with Accessories)

1 Lincoln Portable 300 Amp Welder (Complete with Accessories)

1 Chain Saw

Brooms

Wire Brushes

Rags

Paint Brushes

Work Benches

Rain Gear

Boots

Gloves

Hard Hats

Safety Glasses

Emery Cloth

Fire Extinguishers

Equipment

4 electric jacks

1 central pumping power

1 cletrac bulldozer

1 pulling pole and tools

1 Keystone spudder-truck mounted

Assorted drilling tools

2-Approx. 40 Bbl. Tanks

1 run tank

Seperators

Oil and Gas pipelines

APPENDIX D

AREA OIL COMPANY REPRESENTATIVE

Thoughts on Bradford Area Senior High School Vocational Technical Petroleum Program:

Availability of Building and Materials for program:

Areas of Need in your company and in the Petroleum Industry:

1. Roustabout
2. Pulling Crew
3. Pumper
4. Water Plant Operator
5. Tractor or Bulldozer operator
6. Mechanic
7. Machinist
8. Welder
9. Electrician
10. Pipe Line

APPENDIX E

FIELD TRIPS AND PERSONNEL AVAILABLE

SAFETY Quaker State--John Stevens

DRILLING OPERATIONS (Rotary & Cable Tools) Witco Chemical Corp.--Dale Fox
Quaker State--Bob MacFarlane

WELL SURVEYING Piper Well Survey--Duane Piper
Birdwell--Bill Kaschube
Eastern Well Survey

WELL COMPLETION Halliburton--Ken Clark
Quaker State--Morris Young

PRODUCTION SHOPS Pennzoil--Warren Paynter

REFINERY AND PACKAGING PLANT Witco Chemical Corp.--Dale Fox

TRANSPORTATION National Transit--Bob Confer
Quaker State--John Konstanty

RESEARCH Control and Auto Laboratory--Witco Chemical Corp.--Dale Fox
Production Laboratory--John DePetro
Water Analysis--Tech Labs--Joe Breston

PRODUCTION METHODS Maraflood, Lowery Operation, Water plant, Electric Jacks, Central Pumping Power--All Oil Companies

The following oil companies and personnel would be available for class room lectures and demonstrations.

Witco Chemical Corporation-Dale Fox

Pennzoil Co.-Warren Paynter

National Transit Co.-Robert Confer

Quaker State Oil Refining Corp.-John Stevens

Related Industry:

Lloyd-Smith Company, Inc.-Michael Mitchell

B.M.W.-Monarch-Donald Rice

APPENDIX F

814-368-6222

PENNSYLVANIA OIL AND GAS ASSOCIATION

DRAWER D • 27 WEST WARREN ROAD, CUSTER CITY, PENNSYLVANIA 16725

February 20, 1976

Bradford Area School District
50 Congress Street
Bradford, PA 16701

ATTN: Mr. Frederick Shuey, Superintendent

Dear Fred,

This is to advise that our Association represents over 500 companies engaged in the production of oil and gas within the Commonwealth. These companies employ some 6,000 people most of whom are actively engaged in field production activities. There is an ever increasing need for trained production workers, and the Bradford Area Board of Education, as well as the University of Pittsburgh at Bradford, are to be commended for recognizing this need.

The educational opportunities proposed in your Vocational Petroleum Course will fill a long needed requirement in our industry. We offer the assistance of our monthly newsletter in appraising our companies of your trained young people as they complete their course of education.

Best regards,

E. James Bryner
President

EJB:kc

GBI

GOODMAN BROTHERS INC.

286 High Street P. O. Box 176 - Bradford, Pennsylvania 16701

(814) 362-5593

February 18, 1976

Mr. Myron Crumrine
Vocational Department
Bradford Area Senior High School
Interstate Parkway
Bradford, Pennsylvania 16701

Dear Mr. Crumrine:

We wish to congratulate you on your tentative vocational program being set up for oil field workers. This is indeed something new to the area, and should be welcomed by all contractors in the Pennsylvania oil fields.

Due to the fact that it is almost an impossibility to hire personnel trained in this field, we would be willing to hire graduates from your vocational training program.

If we can be of further assistance, please get in touch with us.

Very truly yours,

Harry H. Goodman

Harry H. Goodman
President

HHG:ew

PUMPS
POWERS
JACKS

TRACTORS
TANKS
PIPE

HERZOG OIL FIELD SERVICE, INC.

NEW AND USED
EQUIPMENT AND SUPPLIES

RESIDENCE PHONE 368-5826

OFFICE PHONES, 362-2051 AND 362-4042

RICHARD B. HERZOG

235 SOUTH KENDALL AVE.
BRADFORD, PENNA. 16701

March 22, 1976

Mr. F. O. Stark, Jr.
Bradford Area Senior High School
81 Interstate Pkwy
Bradford, Penna. 16701

Dear Mr. Stark:

I have been advised that you are initiating an oil country education course in the local senior high school.

This type of program carries my endorsement in that I feel we have a dire need for teaching the high school students the elementary and advanced knowledge available concerning oil country operations.

For some time now we have had a shortage of manpower to follow the oil producing industry because of many reasons. Any way to alleviate this shortage of potential labor in the future by early high school training I again endorse and encourage.

Very truly yours,

Richard B. Herzog

Richard B. Herzog
President

RBH/wdb

Penn Flo Oil Co.
POST OFFICE BOX 144 YOUNGSVILLE, PA. 16371

February 10, 1976

Bradford Area School District
Bradford Senior High School
81 Interstate Parkway
Bradford, Pennsylvania 16701

Attention: Mr. Myron Crumrine

Gentlemen:

It has been brought to our attention thru a Bradford oil field supplier that hopefully, in the near future, vocational training in oil field service will be offered by your school system.

Being of the younger generation myself, I want to commend you for considering this program for young people in and about the Pennsylvania oil fields.

Since it is almost impossible to hire personnel fully trained in this field, we are willing to hire graduates of your vocational training course. I am sure this will prove educational to all concerned.

If further information is needed, please contact me at the above address.

Very truly yours,

PENN FLO OIL COMPANY

David Church

David Church
Field Superintendent

DC/hs

LLOYD-SMITH COMPANY, INC.
Oil Well and Industrial Supplies
18 South Kendall Ave.
BRADFORD, PA. 16701

Bradford Phone
814/368-3162

Branch Store
Brookville, Pa.
814/849-7368

March 23, 1976

Mr. Myron Crumrine
Bradford Area Schools
50 Congress Street
Bradford, Pa. 16701

Dear Mr. Crumrine:

As an oil field supplier who is constantly receiving requests for oil field help from our customers I am most enthusiastic about your inovative special oil field vocational program.

We also think very highly of Mr. Stark whom you have selected to head up the program.

Confirming our conversation, be assured we will support you in this endeavor both morally and through contributions of oil field equipment.

Very truly yours,

J. Michael Mitchell

JMM:le

GBI

GOODMAN BROTHERS INC.

SCRAP DIVISION

286 High Street P. O. Box 176 - Bradford, Pennsylvania 16701

(814) 362 - 5593

February 17, 1976

Mr. Myron Crumrine
Bradford Area High School
Interstate Parkway
Bradford, Pennsylvania 16701

Dear Myron:

Have just learned of a possible vocational training program being started at Bradford High School and want to offer my congratulations to you and your staff.

Being indirectly associated with oil field workers, I can truthfully say that this is one of the best things to happen in Bradford for quite sometime.

Be assured that we are ready to help in anyway that you might need us! we are always interested in hiring experienced personnel.

Very truly yours,

Henry J. Goodman

Henry J. Goodman
Vice President

HJG:ew

SULLIVAN & CLARK, Partners
P.O. Box 144
Youngsville, Pa. 16371

February 10, 1976

Mr. Myron Crumrine
Vocational Department
Bradford Area Senior High School
Interstate Parkway
Bradford, Pennsylvania 16701

Dear Mr. Crumrine:

May I congratulate you on your tentative vocational program being set up for oil field workers. This is indeed something new to the area, and should be welcomed by all contractors in the Pennsylvania oil fields.

Due to the fact that it is almost an impossibility to hire personnel trained in this field, we would be willing to hire graduates from your vocational training program.

If we can be of further assistance, please do not hesitate to get in touch.

Yours truly,

Robert E. Clark
President

REC:ew

TO

Bradford Area High School
Bradford, PA. 16701
Attn: Mr. M. A. Crumrine

FROM

JARRETT MACHINE COMPANY
20 Roberts Street
Bradford, Pa. 16701
Area Code (814) Phone 362-2755

SUBJECT

FOLD HERE

DATE 2/24/76

Dear Sir:

We have heard that the vocational department of B.A.H.S. is planning to offer a course in skills applicable in the area oil fields. We wish to indicate support for this venture because we feel that there is a need for training in this field, particularly among the younger generation.

We will give you whatever assistance we can.

Yours truly,

SIGNED Robert M. Jarrett

55

FORM 1120, REGENT FORMS, PENNSAUKEN, N.J. 08109

SPEED-MEMO

BEST COPY AVAILABLE

S. H. ELDER & COMPANY
OIL PRODUCERS
SMETHPORT, PA.

March 3, 1976

Bradford Area Senior High School
Interstate Parkway
Bradford, Pa. 16701

Attn: F. O. Stark, Jr.

Gentlemen:

This letter is written in support of the concept of a vocational training program directed toward supplying a potential labor force for the Bradford Oil Field. We, as small independent producers, especially, see the drastic need because we are not large enough to train young people ourselves. As a result, we, as many independents, see the average age of our employees reaching the upper 50 and 60 year brackets.

Our only source of experienced personnel has been other independent oil producers. As some of their properties have been shut down or abandoned, these personnel have become available for work elsewhere.

In addition, as we look toward tertiary recovery in the Bradford Oil Field, the need for this type of vocational training becomes even more apparent.

Sincerely,

S. H. ELDER & CO.

R. A. Digel, Jr.

R. A. Digel, Jr.
Manager

RAD, Jr.:sjh

GBI

GOODMAN BROTHERS INC.

286 High Street P. O. Box 176 - Bradford, Pennsylvania 16701

(814) 362-5593

February 18, 1976

Bradford Area School District
Bradford Senior High School
81 Interstate Parkway
Bradford, Pennsylvania 16701

Attention: Mr. Myron Crumrine

Gentlemen:

I have just learned thru my employer that a vocational training school is being considered for students interested in oil field work.

Having worked with young people in many different phases over the years, we would like to offer our services by agreeing to hire students graduating from the School.

I am sure that a training school in Bradford will be quite an asset to not only the local oil fields, but all over the State of Pennsylvania as well.

Very truly yours,

William M. Colestro

William M. Colestro
Foreman, Scrap Division

WMC:ew

PENNZOIL COMPANY
54 BOYLSTON STREET • BRADFORD, PENNSYLVANIA 16701 • PHONE (814) 368-6142

R. S. FULLER
District Purchasing Manager and
District Personnel Manager

March 5, 1976

Mr. Frealyn O. Stark
Bradford Area High School
Interstate Parkway
Bradford, Pa. 16701

Dear Mr. Stark:

In reply to your recent telephone request I have enclosed a photo copy of our job categories for Pennzoil Company's Bradford District, effective through December 31, 1975. You mentioned you were particularly interested in the breakdown of classifications pertaining especially to our field or hourly group, such as pumpers and roustabouts. I trust this will give you the information that you require by classifications.

Your Petroleum Production Course which you are initiating should be beneficial to the area oil companies as this will allow them to employ youths that have a background or some knowledge of petroleum production. The addition of this course is an excellent effort by the Bradford Area High School.

I am sure that Pennzoil Company and its operating managers would be interested in a progress report on the course after a reasonable length of time. Please keep us informed regarding the course. If I can be of any further service, please contact me.

Very truly yours,

R. S. Fuller

R. S. Fuller

RSF:jr
attach.
cc: H. H. Danielson

CLARK & SULLIVAN, INC.
P.O. Box 144
Youngsville, Pa. 16371

February 10, 1976

Bradford Area Senior High School
81 Interstate Parkway
Bradford, Pennsylvania 16701

Attention: Mr. Myron Crumrine

Dear Mr. Crumrine:

We were very pleased to hear from one of your local oil field suppliers of the vocational training program for oil field workers being set up as a part of your school system. I am sure this will be most beneficial to the young people who are willing to do this much needed type of labor, especially in and about the Pennsylvania oil fields.

We are always willing to hire competent people for our crews and, with this new program, will always be insured of good workers.

May I advise you, at this time, that we would be willing to take part in this program by hiring some of your more qualified graduates to work on our leases.

Sincerely,

Edward Sullivan
Partner

ES:cw

GAS AND OIL MANAGEMENT
ASSOCIATES, INC.

BOX 194
YOUNGSVILLE, PA. 16371

February 10, 1976

Myron Crumrine, Supervisor
Vocational Education
Bradford Area High School
81 Interstate Parkway
Bradford, Pennsylvania 16701

Dear Sir:

We have just learned thru one of your Bradford oil field suppliers that you will soon be offering a vocational training program to train young people for work in and around the Pennsylvania oil fields.

We would be definitely interested in hiring graduates of the school as apprentices whereas they would eventually become more familiar with oil and gas field work.

After the school has been established, kindly give me a call - I am sure we can all be of help.

Very truly yours,

GAS & OIL MANAGEMENT ASSOCIATES, INC.

Darrell Weissinger

Darrell Weissinger
Field Superintendent

DW:hl

SINCE 1895

PHONE 368-7141
AREA CODE 814

BOVAIRD COMPANY
Industrial Supplies
181 MAIN STREET
BRADFORD, PA. 16701

February 25, 1976

Mr. Frealyn Stark, Jr.
Bradford Area High School
Interstate Parkway
Bradford, Pennsylvania 16701

Dear Mr. Stark:

We wish to compliment you and your associates, in starting a school course for oil field workers.

It is time that people recognize the fact that the oil field worker has and does play an important part in the economy of our city.

Very truly yours,

Edgar Lemage

EDGAR LEMAGE
BOVAIRD COMPANY

EL:do

CUSTER CITY INDUSTRIAL DEVELOPMENT CO.

P. O. BOX 178
BRADFORD, PENNSYLVANIA 16701

February 18, 1976

Mr. Myron Crumrine
Vocational Department
Bradford Area High School
Interstate Parkway
Bradford, Pennsylvania 16701

Dear Sir:

I have just learned of your tentative plans for a new course of vocational training being added to the School's curriculum.

Qualified personnel is certainly needed in the oil and gas fields of Bradford and, with your new program, contractors, as well as suppliers, should benefit.

We are definitely interested in hiring graduates of the school as apprentices, giving them even a better view of the oil, gas and water industry.

Sincerely,

Michael M. Goodman

Michael M. Goodman

MMG:ew

GBI

GOODMAN BROTHERS INC.

286 High Street P. O. Box 176 - Bradford, Pennsylvania 16701

(814) 362-5593

February 24, 1976

Mr. Myron Crumrine
Bradford Area School District
Bradford Senior High School
81 Interstate Parkway
Bradford, Pennsylvania 16701

Dear Sir:

Having just learned thru our Yard Foreman of the forthcoming vocational training school for oil field workers, I, as Foreman of the Machine Shop of Goodman Brothers, want to offer the help of myself and my men, for this school.

This school is certainly needed in this area, and we are all willing to help in any way possible.

Sincerely,

Larry L. Terwilliger

Larry L. Terwilliger
Foreman, Machine Shop

LLT:ew

BEST COPY AVAILABLE

APPENDIX G

The following properties were inspected and the assets and liabilities of each were noted and described on the following pages:

Former Garage (Douglas Real Estate)

Dry Dock Marine Building-Sundahl

Custer City Industrial Development Company-Building Rental

Pessia Building-Stanley Pecora

M. J. Ryan Garage

Loblaw Building-Tom George

Seasonal Supply-Tom George

Bakewell Building on Mill Street

Forestry Building

New Construction-Sharon Steel Building

Swartz Property-Oil Lease Custer City

Edward Lemage-Lease at Custer City

"Mickey" Edmonds Oil lease and Buildings

The following properties were suggested by various people but a cursory inspection eliminated them from a detailed investigation.

Bisett Warehouse-Bob Jarrett

Bradford News Building-Colligan Agency

Bradford Laundry

Johnson Sled Factory

Stanley O'Dell Building-Colligan

Jack Weaver

Louis Onofrio-Lot on corner of Poplin and Willard

Former Garage (Douglas Real Estate)
Roberts Street
Bradford, Penna.
2,600 Square Feet-Building Area
40' x 65' Masonary building
Approximate 10' Side Walls
Cement Floor
Overhead door
City Utilities

Purchase Price $33,000.00

No Land or parking space available. Poor location

Dry Dock Marine Building
Holley Avenue
Bradford, Pa.
100' x 210' Lot
4,500 Square Feet Building Area
30' x 150' Tin frame constructed building
10' to 14' sidewalls
Wood and cement floors
1-14' Overhead door
5-8' Overhead doors
No insulation
City Utilities

Purchase Price $40,000.00

Not a [illegible]bly constructed building for our needs, no oil wells in the vicinity.

Custer City Industrial Development Company
Custer City, Pa.
2,520 Square Feet-Building Area
36' x 70' Butler Steel Building, Galvanized and Enameled siding
15' sidewalls
6" solid cement floor
1-8' x 10' Overhead Door
Insulated-K-3 Cellulose, fireproof
Overhead gas heaters
Industrial wiring 440V-3 phase 110 volts 1 phase
Township water
Municipal sewage system

No Purchase Possible
Rental $397.00/month 10 year lease

Building was a former charcoal storage building hence there are no

windows, very large heat loss area due to height of building and very dirty.
Extensive remodeling.

Pessia Building
Limestone Street
Bradford, Pa.
7,100 Sq. Ft.
L Shaped masonry constructed building
1-Bay 36' x 100'
1-Bay 35' x 100'
14' Sidewalls
Cement Floor
1-12' x 14' Overhead door
Not Insulated
2 Overhead gas heaters
220/440 Volt Electric service
City Utilities

2 Year Lease $600-$700/month
3 Year Lease with option to purchase, 1/2 rent may be applied toward purchase price.

$95,000.00 Purchase Price

Excessive area and price for school needs.

M.J. Ryan Garage
Lewis Run Lafayette Township
2,400 Sq. Feet, Total Area
40' x 60' Cement block building
14' Height
Cement Floor
4 Overhead doors
No Insulation
2 Overhead Heaters (gas)
No Utilities

Extensive renovation, distance from high school, and building partially rented, make this an undesirable location.

Loblaw Building (Tom George Realtor)
Williams Street
Bradford, Pa.
10,000 Square Feet Total Area
Masonary Construction
12' Sidewalls
Cement Floor-(Wood Covering)
Partial Insulation

City Utilities

$20,000 Yearly Rental
$195,000.00 Purchase Price

Excessive Area, renovation costs and purchase price for school needs.

Seasonal Supply Building
High Street Ext.
Bradford, Pa.
2,400 Square Feet Area
Shenango Steel Building
14' Sidewalls
Cement Floor
14' Overhead door
Insulated
3-Overhead Gas Heaters
110 and 220 Volt Wiring
Water Well
Septic Tank Sewage System

$7,200.00 Yearly Rental
$65,000.00 Purchase Price

Distance from high school, necessary remodeling and a lack of producing oil wells were detrimental to this site.

Bakewell Building
Mill Street
Bradford, Pa.
10,000 Square feet area
4,000 Square Feet (Area now occupied by Equipment and Supplies, possibility of rental of this area)
Steel Building
14' Side Walls
Cement floor
14' overhead door
3 Exit doors
Insulated
Overhead Heaters
110 and 440 Volts-Electricity
City Utilities

Sale Price $110,000.00

Sale price too high and no possibility of renting developed.

Forestry Building
Toad Hollow
Bradford, Pa.

Contacted Byron Rhodes at the Forestry Department in Warren, Pa. and Donald Burge at the Klondike Ranger's Office. Donald Burge, District Forest Ranger, stated on February 13, 1976 that the buildings and land would be for sale but possibly not for approximately 1 year. He is going to investigate this matter further as to possible use of one building by next fall, selling price, or what arrangements might be worked out. There is city water and sewage in the buildings. Fuel oil was used for heat. These buildings are located near the bus garage which would minimize transportation problems.

Donald Burge was contacted at a later date and stated that he did not know when or if buildings would be on the market.

New Construction

A Sharon Steel Building located at the West Penn Lumber Co. in Lewis Run, Pa. was examined and a Mr. Clyde Keech, the Sharon Building dealer from Kersey, Pa. was contacted. Mr. Keech came to Bradford and gave us an estimate on a 40' x 70' Sharon Steel Building erected on a 6" cement slab.

14' Side Walls
2 Walk in doors
2 Walk in panic doors
5-5' x 4' windows
1-12' x 14' Overhead door
TF-200 insulation

Total Package Price $20,395.00

Some construction policies were not suitable and land would have to be secured for a building site. No wiring, plumbing or heating system included in price.

Swartz Property-Oil Lease
East Warren Road, Custer City, Pa.
Approximate-10 acres
Surface and Mineral rights
6 Producing wells
2 very small tin buildings, suitable for nothing but storage

Asking price $60,000.00

Very poor condition-about 1/2 with pony beam jacks-the rest with nothing. No central pumping power.

Edward Lemage Property-Oil Lease
Custer City, Pa.
17A-Surface and sub surface
14 Producing oil wells
(8 wells equipped with pony beam jacks and connected to a central pumping power. 6 wells had been equipped with electric jacks but jacks have been sold.)
Mineral rights are in fee but if sold Mr. Lemage will retain a 1/8 royalty and he quoted a purchase price of approximately $30,000.00
No pulling or well servicing equipment
No buildings except for power house

"Mickey" Edmonds Oil Property
Willard Avenue Ext.
Bradford, Pa.
25A.-Mineral Rights 1/8 Roy. 7/8 Working Int.
8.5 Surface (Warrant 3906-7.45A + 60' x 200' Lot)
11 Producing wells
4 Water injection wells
4 electric Jacks
1 Central pumping power
1 Cleatrac Bulldozer
1 Pulling Pole
1 Keystone spudder (truck mounted)
1-36' x 40' Butler Building
1440 Sq. Ft. Area
Steel Building
14' Sidewalls
Cement Floor
12' x 14' Overhead Door
Insulated
Gas Heat
220V-3PH. Wiring
Well Water
City Sewage

Purchase Price-$40,000.00

Rental of oil lease--$8,750.00/yr $729.16/mo.

Rental of equipment--$4,585.00/yr $382.08/mo.

Due to the location of this property, the actual working lease involving a hands on training facility, the Butler Building, and many other advantages this property was further investigated and recommended to the school district.

APPENDIX H

COOPERATIVE EDUCATION
PERSONAL DATA SHEET

Date_____

Name _____ Phone_____

Address_____

Age___ Date of Birth_____ Height_____ Weight_____ Male_____ Female___

Grade_____

Present Curriculum:
College Prep._____, General_____, Business _____, Vocational_____

Hobbies and interests_____

_____

Cooperative Education Occupation Interests
(List 3) in order of preference

1. _____

2. _____

3. _____

List Courses or Experiences Which Qualify You For These Occupations

1. _____

2. _____

3. _____

Past Work Experience

List Below Places You Worked in the Past

Type of work	Employer	Dates From	Dates To
1.			
2.			
3.			

Has you Attendance Been: Excellent_____ Good_____ Fair_____ Poor_____

CO-OPERATIVE EDUCATION OCCUPATIONS

Cooking

Waiter Waitress

Butcher

Produce Manager

Dairy Department Manager

Baker

Store Manager Trainee

Welding

Oil Lease Worker

a. Roustabout
b. Pumper
c. Service Rig Operator

Maintenance

a. Industrial
b. Building-Grounds

Plumbing

Carpet-Linoleum Installation

Appliance Repair

Auto Body Repair

Graphic Arts

Commercial Printing

Commercial Art

Watch Repair

Shoe Repair

Travel Agent

Horticulture

Tailoring

Interior Decorating

Drapery-Upholstering

Legal Secretary

Medical Secretary

Dental Assistant

Beautician

Data Processing

Photography

APPENDIX I

INTRODUCTORY OIL PRODUCTION COURSE OUTLINE

Objective: Instruction on the removal of Pennsylvania Grade Crude Oil from the different oil bearing sands with eventual delivery of the crude oil to the refinery.

I. History of Oil Industry in Pennsylvania

- A. Film-"Pithole, U.S.A."
- B. Drake Well-Titusville-1859
- C. Bradford Field discovered-1871-First well 1,110' deep
- D. Secondary recovery-1928
  - 1. Five spot method of natural gas and water flooding.
- E. Tertiary recovery-present day
  - 1. Miscible Method
    - a. Maraflood-Injection-Micello Fluid Slug-Solvent Polymer-Drive Water
  - 2. Thermal Method
    - a. Underground combustion
    - b. Steam injection

II. Development of Oil Lease

- A. Map of property
- B. Map of five-spot layout
- C. Drilling
  - 1. Permits
  - 2. Bradford 3rd sand sample
  - 3. Chipping samples
  - 4. Slate Sample
  - 5. Penn. grade crude oil sample

D. Water plant layout and flooding operation

1. Overhead projector

E. Methods of pumping oil wells

1. Electric jacks-pictures

2. Central pumping power-pictures

3. Pony beam jacks-pictures

F. Effect of water injection wells on oil producing wells

1. Overhead projector

a. Different sizes of casing, tubing, and pipe

b. Rods-subsurface and surface

c. Working barrel (Actual working and pumping model in classroom)

d. Packer (Model)

e. Main sand formations

1. Glade and Bradford 1st

2. Clarendon, Sugar Run, and Dewdrop

3. Speechley & Balltown

4. Chipmunk

5. Bradford 2nd

6. Harrisburgh Run & Cooper

7. Sliverville

8. Bradford 3rd

9. Lewis Run

10. Kane

11. Haskill

12. Oriskany

III. Production Job Categories or Classifications-Their Duties and Tools of the Trade

A. District or Operational Manager

B. Production Superintendent

C. Engineer-Petroleum or Geologist

D. Foreman

E. Head Roustabout

1. Roustabouts or Roughnecks

2. Pulling Crew

3. Tractor or Bulldozer Operators

4. Truck Drivers

F. Stationary Engineer

1. Pumpers

2. Water Plant Operators

G. Welders

H. Mechanics

I. Machinists

J. Electricians

K. Drilling

1. Drillers

2. Tool Dressers

3. Logging

4. Fracturing

5. Shooting

6. Production Laboratory

IV. Pipe Line Job Categories or Classifications-Their Duties and Tools of the Trade

A. District or Operational Manager

B. Pipe Line Superintendent

C. Foreman

D. Gang pusher or Leader

1. Gang

E. Stationary Engineer

1. Pump Station Operator

F. Gauger

G. Dispatcher

1. Tractor-Trailer and Tank Truck Drivers

2. Railroads

V. Related Production Job Categories or Classifications in the Bradford Area

A. Rotary and cable tool contractors

B. Oil Well Supply stores

C. Well servicing units

D. Well surveying companies

E. Manufacturing companies

VI. Refining

A. Film-"Refining"-BP North America

VII. Field Trip-Operating Oil Lease

A. 2-Central pumping powers in operation

B. Electric jacks in operation

C. Water plant in operation

D. Oil and water separator in operation

E. Run Tanks and piping

F. Safety

1. Hard Hats

2. Machinery and wells

3. Fire

4. Weather

VIII. Question and Answer Period

APPENDIX J

80

OIL PRODUCTION
INTRODUCTORY COURSE
STUDENT EVALUATION QUESTIONNAIRE

Please respond to the following questions by checking a numerical rating (1 low 5 high) to the questions in the blank space which is provided.

1. To what extent has this course increased your knowledge of the petroleum industry?

   1._____Low 2._____ 3_____ 4 _____ 5_____

2. To what degree has participation in this course influenced your interest in a career in the petroleum industry.

   1_____ Low 2_____ 3_____ 4_____ 5_____ High.

3. To what degree has participation in this course increased your knowledge of careers in the petroleum industry and related areas of employment.

   1_____Low 2_____ 3_____ 4_____ 5_____High.

4. When applicable to what degree were safety procedures and practices emphasized and applied.

   1_____ Low 2_____ 3_____ 4_____ 5_____ High.

5. To what extent would you recommend this course to other students who have not had the opportunity to enroll in it.

   1._____ Low 2_____ 3_____ 4_____ 5_____ High.

Please respond in your own words to the following questions.

1. Was the field trip beneficial to your understanding of the petroleum industry?

   _____

2. Are you interested in taking the full year course which will be offered next school year?_____

3. What was the most interesting portion of this course?_____

   _____

   _____

4. What was the least interesting part of the course?_____

_____

5. Please indicate what you would like to see included or deleated from this course if it is offered again._____

_____

6. In the year long course what area should be emphasized the most.

_____(a) technical lectures

_____(b) shop repair techniques

_____(c) field production techniques

_____(d) related skill areas

(Please number 1 through 4 in degree of importance to a year long course)

AE 009 676

ACCESSION NUMBER: VT103584

TITLE: PLANNING PROCESS MANUAL FOR VOCATIONAL EDUCATION: UTILIZING THE MANPOWER MANAGEMENT INFORMATION SYSTEM. EXPERIMENTAL EDITION, 1975.

DESCRIPTOR: *EDUCATIONAL PLANNING; MANUALS; VOCATIONAL EDUCATION; SCIENCE EDUCATION; *MANAGEMENT INFORMATION SYSTEMS; *SCHOOL INDUSTRY RELATIONSHIP; SURVEYS; EMPLOYMENT OPPORTUNITIES; CAREER PLANNING; *STUDENT NEEDS; VOCATIONAL INTERESTS; *NEEDS ASSESSMENT; *RELEVANCE (EDUCATION); SECONDARY EDUCATION; ARTICULATION (PROGRAM)

IDENTIFIER: VENTURA COUNTY; CALIFORNIA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 102P.

ABSTRACT: THE MANUAL WAS DESIGNED TO BE USED BY VOCATIONAL PROGRAM PLANNERS IN DEVELOPING VOCATIONAL COURSES/PROGRAMS IN OCCUPATIONAL AREAS GEARED TO LOCAL INDUSTRY NEEDS. TO BUILD METHODOLOGY FOR PLANNED CHANGE INTO A VOCATIONAL SYSTEM REQUIRES A DATA COLLECTION AND ANALYSIS SYSTEM, INCLUDING COOPERATION WITH INDUSTRY AND AMONG THE VARIOUS VOCATIONAL AND TECHNICAL SCHOOLS TO COORDINATE RELEVANT JOB REQUIREMENTS AND NEEDS WITH STUDENT CAREER PLANNING. THE MANUAL PRESENTS A PLANNING PROCESS FOR VOCATIONAL EDUCATION, USING SOME OF THE ELEMENTS OF THE MANPOWER MANAGEMENT INFORMATION SYSTEM TO ARRANGE DATA FROM A VARIETY OF SOURCES TO MATCH STUDENT INTERESTS, PROGRAM ENROLLMENTS, AND OCCUPATIONAL TRENDS. JOB TITLES FELT APPLICABLE TO A SCIENCE EDUCATION PROGRAM WERE IDENTIFIED FROM THE DICTIONARY OF OCCUPATIONAL TITLES, LOCAL INDUSTRIES WERE SURVEYED AS TO THE LABOR MARKET FOR THE JOB TITLES, AND A STUDENT NEEDS ASSESSMENT WAS MADE TO DETERMINE PARENTAL INFLUENCES, GEOGRAPHIC MOBILITY, COMMUNITY PREFERENCES, AND STUDENT INTEREST IN CAREER PLANNING. OTHER SECTIONS OF THE REPORT TOUCH ON ADVISORY COMMITTEES, EDUCATIONAL ACCOUNTABILITY, STUDENT FOLLOWUP, AND PROGRAM ARTICULATION. INCORPORATED IN THE DOCUMENT ARE THE QUESTIONNAIRES AND OTHER FORMS USED IN THE STUDY. (MF)

INSTITUTION NAME: SIMI VALLEY UNIFIED SCHOOL DISTRICT, SIMI, CALIF.

SPONSORING AGENCY NAME: CALIFORNIA STATE DEPT. OF EDUCATION, SACRAMENTO.; OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT 103 584

56-72603-D-5

OCT 20 1976

PLANNING PROCESS MANUAL

FOR

VOCATIONAL EDUCATION

UTILIZING THE

MANPOWER MANAGEMENT INFORMATION SYSTEM

(EXPERIMENTAL EDITION)

1975

In Partial Compliance of
Vocational Education Project
#56-72603-D-5
Under the
Vocational Education Ammendments of 1968
P. L. 90-576 Part D Exemplary

Project Director:
Dr. Chester A. Howe
Director of Extended Services
Simi Valley Unified School District

Project Consultant:
John L. Van Zant
Ventura County Director of
Occupational Education

Curriculum Development Specialist:
Wayne C. Hollins
Science Department
Simi Valley High School

Associate Director:
Dr. Dale A. Johnson
Assistant Principal
Simi Valley High School

Program Planning Specialist:
Maribeth Potter
Simi Valley Unified School
District

Ventura County Superintendent of Schools Office Staff As
Additional Resource Personnel

VT 103 584

ACKNOWLEDGEMENTS

Mr. Dennis Bean
Project Manager
Manpower Management Information System
Ventura County Superintendent of Schools Office

Mr. Ronald S. Burns
Occupational Counselor
Ventura County Superintendent of Schools Office

Mr. Ted Collins
Systems Supervisor
Regional Educational Data Processing Center
Ventura County Superintendent of Schools Office

Miss Odessa Dubinsky
Chief, Southern California Employment
Data and Research Section
Employment Development Department

Dr. Chester A. Howe
Director of Extended Services
Simi Valley Unified School District

Mr. John L. Van Zant
Director of Occupational Education
Ventura County Superintendent of Schools Office

A sincere expression of thanks is extended to all who cooperated to make this project a reality, particularly to the Project Staff of the California Manpower Management Information System.

A special thanks to Wayne C. Hollins (Curriculum Development Specialist, VEA Part D Project) for his encouragement, advice, good nature, and assistance in preparing this Manual.

TABLE OF CONTENTS

PREFACE 1

USE OF THE MANUAL 3

INTRODUCTION 4

BACKGROUND 8

MANPOWER PROJECTIONS 12

JOB PERFORMANCE REQUIREMENTS 17

- Dictionary of Occupational Titles Search 17
- Code Structure of the D. O. T. 17
- First Three Digits 18
- Last Three Digits 20
- Inference of Complexity in Last Three Digits 22
- Worker Traits 23
- Training Time Information 26
- The Concept of General Education Development 29
- The Concept of Specific Vocational Preparation 31
- The Relationship of GED and SVP 33
- Analysis of Selected Occupations 40

CHOICE OF SAMPLE 41

OPERATIONAL PROCEDURES 44

- The Cover Letter and Accompanying Survey 45
- Interview Techniques 51
- Follow-Up Letter 56

STUDENT NEEDS ASSESSMENT 60

- Student Career Planning Profile 66
- Occupational Brochures and Briefs 69
- School Summary Reports 72
- County Summary Reports 74
- Student Career Planning Data Compared to Projected Labor Demands 80

THE ADVISORY COMMITTEE 85

ACCOUNTABILITY AND FOLLOW-UP 87

ARTICULATION 93

GLOSSARY OF TERMS 95

REFERENCES 97

PREFACE

During the school year 1971-72, the State Department of Education, the Ventura County Superintendent of Schools Office, the Ventura County Community College District and the California Employment Development Department (EDD) initiated a research project. This project, now in its fourth year, is commonly known as the "Manpower Management Information System" (MMIS). The initial phase of the project's research activities dealt with identifying occupational needs or "demands" at a local level. This project has since been expanded to include the designing, implementing and evaluating of a comprehensive system to match occupational demand with the potential occupational supply now enrolled in vocational education training programs.

Continuing with this expansion, application was made to the State Department of Education for assistance from funds available through the Vocational Education Amendments of 1968, Part "D" Exemplary. The Project funding was awarded in July of 1974, through the Simi Valley Unified School District.

The purpose of this project is to develop the means and methods of constructing a comprehensive vocational program geared in a specific area of occupational training to documented local industrial needs. Inherent in this purpose is a commitment to give birth to an

implementable, transportable methodology and procedure that can be used in both public and private schools at the secondary and community college level. The final ingredient is to develop a good working relationship among local school districts, community college districts, county educational facilities and industrial resources. The project in its final form can then be utilized as a working model to expand the vocational thrust toward which education is currently committed.

The freedom to express professional judgment in the developmental process was encouraged. Points of view or opinions do not, therefore, necessarily represent official State Department of Education position or policy.

USE OF THE PLANNING PROCESS MANUAL

THIS MANUAL IS DESIGNED FOR USE BY VOCATIONAL PROGRAM PLANNERS FOR INITIATING AND DEVELOPING COURSES/PROGRAMS AT THE SECONDARY LEVEL. ALTHOUGH INTENDED TO USE IN TOTO AS A STEP-BY-STEP PROCEDURE FOR BEGINNING A NEW PROGRAM, IT HAS BEEN ORGANIZED SO THAT IT MAY BE REFERENCED FOR A SPECIFIC FUNCTION.

It is acknowledged that for a variety of reasons it may not be necessary to refer to the entire manual. For someone with a functioning program, for instance, a new means of enrolling students might be sought. In this case the "Student Needs Assessment (CPI)" section can be singularly referenced.

INTRODUCTION

Those entrusted with the creation of a vocational education program must remember to treat vocational education as a process. The process requires careful planning, thus a Planning Process Manual.

This Manual is presented in a step-by-step format, with examples, utilizing a number of the elements of the Manpower Management Information System. The Manpower Mangement Information System (MMIS) provides the ability to utilize data collected from a variety of sources to match student interests, program enrollments and occupational trends. It also has produced a series of information display forms designed to correlate the various data into a viable information dissemination system.

The demand for relevant education has intensified the need for career preparation that matches a variety of student needs. A student career assessment tool is a component of the MMIS that assesses the student's interests, aptitudes, skills, etc., either structurally or directly. This will allow for correlation between the potential worker's "needs" and the labor market's requirements.

One of the greatest concerns of young people today is to find work that is meaningful -- jobs that can give them a sense of purpose. Parents, educators and the public are concerned that schools offer

young people the practical and relevant education that will prepare them for work in which they can find that fulfillment.

Vocational Education is by definition education for employment, and the 1963 and 1968 vocational education legislation indicate that such training must be "realistic in the light of actual or anticipated opportunities for gainful employment".

Establishing a new program of vocational education is one of the most speculative ventures in which educators can become engaged. Nevertheless, in an era of change and development of new industrial techniques and occupations, administrators of vocational programs must be on the alert to provide programs which will prepare young people for job and career opportunities.

There are a number of ways that controlled, guided, or planned change may be built into a vocational system. First of all, and critical to the entire process, is the necessity for a data collection and analysis system which allows for information analysis pertinent to the appropriate internal and external guidance of the system. Without such information, planning becomes an intuitive process, which may or may not be related to the needs of the real world. A part of this data collection and analysis system would be the development of close administrative ties with informed agencies and individuals in the relevant planning area.

All of education must become more conscious of business and

industrial needs, and vocational education, especially, must strengthen its cooperative linkage with the employing community. Cooperation between industry and education is usually recognized as essential in establishing new vocational and technical education programs. Generally, industry people would like to have the school assume the burdens of recruiting and training potential new employees. They would like the prestige which comes to their industry and organization as a result of the offering of their program by the schools, and they welcome the opportunity to engage in an educational activity which satisfies their sense of civic duty and pride in public service.

Unfortunately, employers do not always clearly understand the problems of the educational institution, and vice versa. Here the educators have to take initiative to clarify and resolve difficulties of communication, rapport, and cooperation. For instance, employers may not develop definitive manpower policies, nor feel any commitment to employ graduates of the school occupational programs, despite the fact that they may have helped establish the programs.

Crucial to the development of effective industry-education cooperation is the need for organized cooperative relationships among the advisory committees of the various types of vocational and technical schools within the boundaries of a given school system or metropolitan labor market area. It appears to be the rule rather than the exception for school systems to develop and offer occupational

education programs without reference or regard to what is offered in the neighboring school systems. Yet, each of the programs is attempting to meet industry's needs within a particular metropolitan area.

There is also the need for articulating the occupational program both horizontally and vertically among the secondary schools, the area vocational schools (ROP/ROC), the technical institutes, and the community colleges. Perhaps even more important, there is the need for developing some formalized relationships between local school system advisory committees, whether established voluntarily or by state mandate, and the state advisory councils established in accordance with provisions of the Vocational Education Act of 1968.

Program success will, to a great extent, be dependent on favorable attitudes and support of the faculty, the administration, the governing board, the students, the parents, labor, management, and the community at large. The continued development of the total Manpower Management Information System should help produce an effective and efficient planning tool which can be utilized for assisting students in determining relevant career choices and curriculum content for occupational preparation programs.

BACKGROUND

This Planning Process Manual reflects the development of an IDEA from its inception to a finished product. A new or modified program in vocational education must begin somewhere. . . with something . . . or someone. An idea, by definition, is a mental image, intention, plan, belief, opinion, thought, visual perception, or vague impression. One of the definitions should provide a stimulus for futher investigation, as it was for us. The examples included on the BLUE PAPER in this manual are the project staff's (Mickie Potter and Wayne Hollins) experiences in using the data available from the Manpower Management Information System. The examples are in the first person plural.

Two remarks describe the uniqueness of our particular project: 1) we conducted a "field test" of the Manpower Management Information System (MMIS), utilizing data which previously was not available for a comprehensive program planning exercise, and, 2) the intention of the program is not to offer a "survey" course, but one to educate students for employment in a science related occupation upon graduation from high school.

The project began with a search of the MMIS data available to us through the Ventura County Superintendent of Schools Office. This included the Industry-Occupation Matrix, the Career Planning Inventory,

and other documents relating to manpower planning. From this activity it was decided that it would be necessary to develop a list of relevant job titles. Utilizing the D. O. T. we identified, by inspection, job titles that we felt would be most applicable to the science related program. Once the list was compiled, we undertook a verification survey by contacting appropriate industries.

An area not to be overlooked in planning a new program in vocational education is the consideration of student needs. The examples illustrated in the Planning Process Manual are taken from the Career Planning Inventory (CPI) which is given to every ninth through twelfth grade student in Ventura County. Due to the versatility of computer programming, it was possible to identify students with specific needs. The C. P. I. is available from the Ventura County Superintendent of Schools Office and has been utilized in other areas of the State.

Upon completion of the initial data search, we selected the occupational title MEDICAL-LABORATORY ASSISTANT. This occupation seemed to be most encompassing of the type of training program that will meet the needs of our students and the employing community. It will be used as the specific example throughout this Manual.

In order to relate the occupational title selected to the planning process, the following excerpts from the 1974-75 Occupational Outlook Handbook are included for your information:

MEDICAL LABORATORY ASSISTANT

Medical Laboratory Assistants . . . generally have a year or less of formal training. . . assist medical technologists in routine tests and related work that can be learned in a relatively short time. . . may store and label plasma; clean and sterilize laboratory equipment, glassware, and instruments; prepare solutions following standard laboratory formulas and procedures; keep records of tests; and identify specimens.

Most medical laboratory assistants employed in 1972 were trained on the job. In recent years, however, an increasing number have studied in one-year training programs conducted by hospitals, junior colleges in cooperation with hospitals, or vocational schools. Hospitals offer the greatest number of training programs.

Applicants should be high school graduates with courses in science and mathematics. The programs include classroom instruction and practical training in the laboratory. They often begin with general orientation to the clinical laboratory followed by courses in bacteriology, serology, parasitology, hematology, clinical chemistry, blood banking, and urinalysis.

Accuracy, dependability, and the ability to work under pressure are important personal characteristics for a medical laboratory worker. Manual dexterity and accurate color vision are highly desirable.

Employment of medical laboratory workers is expected to expand moderately through the mid-1980's, as physicians make wider use of laboratory tests in routine physical checkups and in the diagnosis and treatment of disease. Indirectly influencing growth in the field are population growth, rising standards of living, greater health consciousness, and expansion of prepayment programs for medical care that make it easier for people to pay for services.

While employment of laboratory personnel in general is expected to expand moderately, the use of automated laboratory test equipment may lead to a greater growth of medical laboratory technicians and assistants relative to technologists. Through technological advances, technicians and assistants can operate equipment to perform tests which previously required the skill of a technologist.

Beginning salaries for laboratory assistants averaged about $6,200 annually. The Federal Government paid medical laboratory assistants and technicians starting salaries ranging from $4,798 to $6,128 a year in early 1973, depending on the amount and type of education and experience.

MANPOWER PROJECTIONS

The State Department of Education and the Board of Chancellors require local districts to prepare and submit an Annual Plan for Vocational Education. Part II of this plan details the local district's objectives and activities for fulfilling the requirements of a Twelve Function Vocational Education Delivery System. However, certain of these functions are difficult to fulfill because there is no satisfactory methodology to utilize.

A variety of estimating techniques is currently employed by practitioners in projecting manpower demand. There is apparently no consensus as to which yields the best series of demand projections. All methods are based on existing knowledge of demographic and economic data for a given area. A combination or mix of these methods and the necessary judgment to analyze the data makes projecting primarily an art, not a science.

There are four basic techniques in manpower projections: employers survey, extrapolations of historic trends, industry/occupation matrices, and input/output tables. Two of these techniques were used in this project: the industry/occupation matrices and the survey of employers.

In all projection techniques, assumptions or corrections must be made for occupational employment needs resulting from employment

opportunities created by death, retirement, layoff, promotions, and technological advances.

A California Manpower Management Information System (MMIS) is being designed to assist the local Vocational Education practitioner to fulfill many of the management responsibilities inherent to the Twelve Function Delivery System. While the management information system is ancillary to the Twelve Function Vocational Education Delivery System, it is specifically designed to provide the Vocational Education practitioner with a logical and systematic methodology to accommodate, organize, and utilize the continuous demand for input/output data.

Developing a capability for generating and projecting industrial and occupational data for a prescribed geographical area, such as a Standard Metropolitan Statistical Area, was a major element of the original Manpower Projection Model Project. The beginning efforts were deveoted to the production of an "Early Warning" Industry-Occupational Matrix. This was developed by a linkage of local historical employment data to national manpower projections. The fundamental assumption of the Phase I localized Industry-Occupational Matrix was that local occupational distributions within industry divisions tend to be comparable to the national industry-occupational structure. The second assumption was that such distributions remained relatively stable over the short-term periods for which the projections were made.

Based on these assumptions, the occupational coefficients were computed for industries from census and other data. Standard Metropolitan Statistical Area trends and anticipated movements within industries were then projected.

With the availability of the 1970 census data for SMSA's, it was possible to apply the procedures and methodology provided by the U.S. Bureau of Labor Statistics to local data. The data here has been adjusted to the census classification structure, and a computer program and processing has been developed and completed for thirteen SMSA's in the State by the California Department of Employment Development.

As a result, one component of the California Manpower Management Information System is now operational. This component is a tool for the practitioner to utilize when seeking to identify Labor Market Needs (Function 1). The heart of the component is the Industry-Occupational Matrix (I-0). The data contained in the matrix are very useful for a variety of purposes, but they do require careful interpretation.

Additional information on the I-O Matrix is available through the Employment Data and Research Section, Employment Development Department, either the Los Angeles or San Francisco office.

EXAMPLE

The development of vocational education programs rests on the premise that an identified need exists. This need has been demonstrated by a reliable and accurate data collection system. We went to a variety of data services, the first of these being the Manpower Projections. We used three: those for our local county (Ventura), for the State of California, and since our geographical location is right on the border of Los Angeles County where a great number of people in our area work, we added the Los Angeles County data. When the Employment Development Department prepares Industry-Occupation Matrices, it is necessary to utilize Bureau of Census occupational titles. Because of the occupations related to the health field, we found the listing to be quite general. The titles were, for example, health aides, health trainees, laboratory technicians (non-medical), medical help (non-nursing).

The MMIS data sources did support a projected demand for workers in these occupations, particularly in the technical field associated with allied health.

The data we surveyed represented a combination of the industry change and replacement needs for the years 1972 through 1975. The following is an example:

		PROJECTED TOTAL NEEDS FOR 3 YEAR PERIOD 1972 - 75		
Line #	Job Description	Ven Co	LA Co	Calif.
50	Other Health Technologists	41	677	1723
57	Technologist, except Health	16	217	3800
392	Health Aide, except Nursing	71	2972	5300
393	Health Trainees	15	201	369
395	Nurses Aides/Orderlies	507	8659	20450

This same procedure can be used in seeking manpower needs for other areas of employment.

To clarify what occupations are within the Occupational Groupings it was necessary to utilize the Classified Index of Industries and Occupations (see Reference #4). This publication lists detailed job titles that, in most cases, can be related to specific D. O. T. job titles.

These projections are also available for other Standard Metropolitan Statistical Areas in California.

JOB PERFORMANCE REQUIREMENTS

Dictionary of Occupational Titles Search

Volume I of the D. O. T. is very useful to the program planner in determining specific and unique relationships within and between numerous occupations. The volume identifies and describes occupations which possess similar occupational, industrial, and worker characteristics. Volume II is most beneficial for grouping specific occupational areas.

Development of specific programs is most profitable when it is accomplished within the framework of their relationships to the entire spectrum of the world of work. This type of relationship is illustrated for the specific job of MEDICAL-LABORATORY ASSISTANT.

Code Structure of the D. O. T.

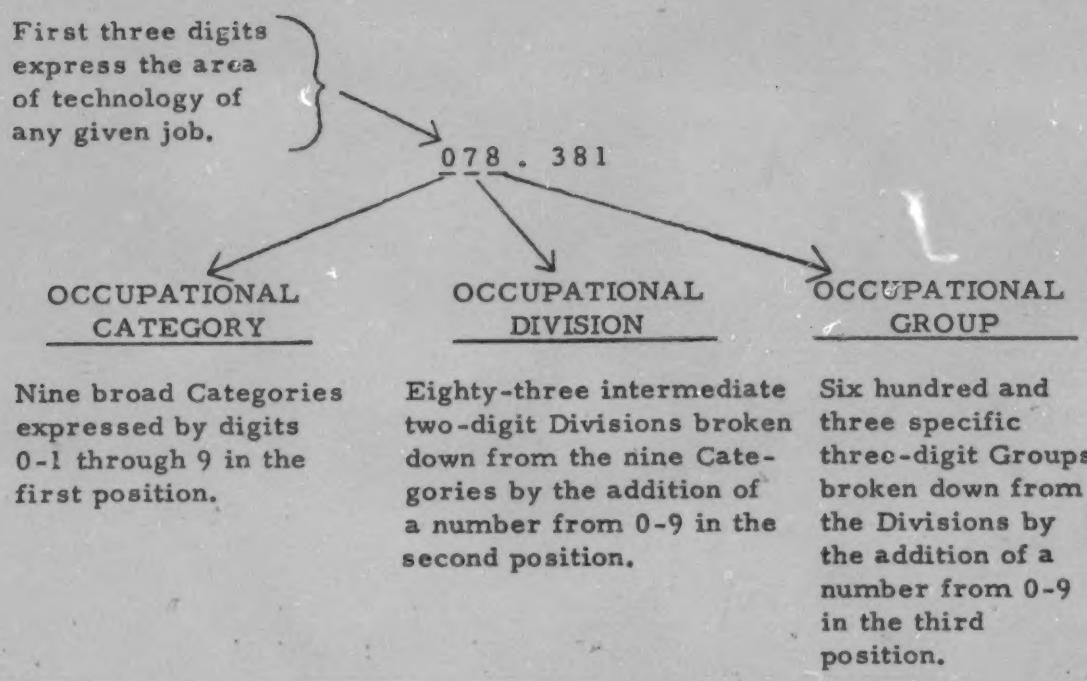
The major job groupings in Volume II of the Dictionary of Occupational Titles are related to the occupational code numbers assigned to jobs in the Dictionary as given in Volume I. Each digit value in an assigned code has important occupational meaning. It is helpful to be able to understand the code structure of the Dictionary.

First Three Digits

An occupational code has six digits separated by a period, such as: 078.381. The first three digits of the code to the left of the period specify the area of technology for each job. These areas of technology are expressed in three levels or degrees of specificity which correspond to the three digit positions of the code. The levels are called:

Occupational Categories	(first code digit)
Occupational Divisions	(second code digit)
Occupational Groups	(third code digit)

Within these levels are technological titles for the organization of all jobs in the world of work. There is also a code numbering system which provides a structure for the organization. (See Volume II, p. 1-24, for a complete outline of the Categories, Divisions, and Groups with the numbering system.) The application of the Occupational Categories, Divisions, and Groups to an occupational code can be outlined as follows:



In the example above the broad Occupational Category (first digit) is specified as 0 for "Professional-Technical Occupations". A further breakdown into an Occupational Division is expressed by the addition of another number in the second position. In this case it is 7 making the two digit Division of 07 for "Occupations in Medicine and Health". The third digit is 8 indicating that the full Occupational Group for this job is 078 for "Medical and Dental Technology". This illustrates the progression from a broad Occupational Category through an intermediate Division to a specific Occupational Group.

The assignment of the first three digits of an occupational code to any given job is made regardless of the "skill level" or complexity of that job, so long as the work itself falls within the specified area of

technology. This means that in any given Occupational Group there may be many different levels of jobs from supervisors down to laborers.

Last Three Digits

The meaning of the numbers in the last three digits of an occupational code is quite different from that of the first three. The last three digits of a code express the total activity requirements of the job-worker situation, or, in other words, they describe "what the worker does". This is sometimes termed Worker Function. This expression is made in terms of three primary factors: DATA, PEOPLE, and THINGS. All job-worker situations involve a relationship to DATA, PEOPLE, and THINGS to some degree. A hierarchy of numbered levels has been devised to express the varying degrees of relationship which a worker may have with DATA, PEOPLE, and THINGS in his work activities. (See Volume II, Appendix A, p. 649-650, for an outline of the structure and for definitions of the DATA, PEOPLE, THINGS hierarchies.)

The last three digits of an occupational code correspond to DATA, PEOPLE, and THINGS as follows:

JOB TITLE:
MEDICAL LABORATORY
ASSISTANT

Last three digits express what the worker does in relation to DATA, PEOPLE, and THINGS.

078 . 381

DATA PEOPLE THINGS

In the above example the numbers indicate that the worker's relationship to DATA is at hierarchy level 3 for "compiling", the relationship to PEOPLE is at level 8 which is described as "No Significant Relationship", and the relationship to THINGS is at level 1 for "Precision Working". (See Volume II, Appendix A, for full definition of the worker's functional activities in this particular job.) The worker's activities involve compiling data and performing precision work with things and objects. Contacts with people are not important, or are incidental, to the performance of the work. It should be noted that in the Dictionary only those relationships which are occupationally significant in terms of the requirements of the job are reflected in the code numbers. The incidental relationships which every worker has to DATA, PEOPLE, and THINGS, but which do not seriously affect successful performance of the essential duties of the job, are not reflected.

The assignment of the last three digits of an occupational code to any given job is made regardless of the area of technology involved.

The functional code in the previous example of .381 may apply to many jobs in many different areas of technology besides the Occupational Group 078, so long as it correctly indicates "what the worker does" in the various Occupational Groups.

It is in the combination of the first three with the last three digits of the occupational code that the full occupational meaning can be realized, the last three digits expressing "what the worker does" and the first three digits specifying in what area of technology the work is being done. The resulting combination provides a "thumbnail sketch" of the job itself.

Inference of Complexity in Last Three Digits

Since the DATA-PEOPLE-THINGS hierarchy levels are arranged in an ascending scale of functional complexity as the number values get lower, the resulting combinations of numbers for the last three digits carry with them the implication of complexity of "skill level". For example, it might be inferred that a job having the last three digits of .381 is of a "higher skill level" than a job coded .685. This type of inference may be useful in comparing different jobs, expecially if they are in the same Occupational Group, so long as it is kept firmly in mind that the DATA-PEOPLE-THINGS levels are descriptive concepts rather than quantitative measures, and as such do not always represent the fullest expression of job complexity.

Worker Traits

The concepts of Worker Traits and the system of grouping jobs into families according to universal worker trait requirements are among the most important ideas in the Dictionary of Occupational Titles. They permit jobs and groups of jobs to be viewed and dealt with in terms of the critical requirements which will be made upon the workers themselves.

Worker Traits are comprised of six individual concepts or components as follows:

I. Training time: the amount of (1) General Education Development or G. E. D. (six levels) and (2) Specific Vocational Preparation, S. V. P., (nine levels) required for a worker to acquire the knowledge and abilities necessary for average performance in a particular job.

II. Aptitudes: the specific capacities and abilities required of an individual in order to learn and perform adequately a task or job duty. (eleven factors)

III. Interests: preferences for certain types of work activities or experiences with possible rejection of contrary types of activities or experiences. (ten bi-polar factors)

IV. Temperaments: different types of occupational situations to which workers may have to adjust in terms of personality characteristics. (twelve factors)

V. Physical demands: the important physical activities required of a worker on the job. (six multiple factors)

VI. Working conditions: the physical surroundings imposed by a specific job which will markedly affect the worker. (seven multiple factors)

It should be kept in mind that worker traits are primarily job requirements. They are inherent in job duties and are not, strictly speaking, personality factors which people possess. They are, however, those requirements of jobs which will have potential effect upon some aspects of the worker's present capability or intrinsic nature, and as such they are expressed in "people terms". As a result, it is easier to evaluate human individuals in terms of the Worker Trait requirements of jobs. The important questions become: How does the student match up to such job requirements as --

--the amount of educational achievement needed as background for performing the work?

--the amount of specific skill training necessary to become proficient in the job?

--the aptitudes that appear to be required in order to learn and perform the job?

--the task-interest patterns that are reflected in the job duties?

--the work situations that may make demands on personality?

--the physical activities of performing the work?

--the working conditions imposed by the job?

The basic use of the Worker Trait group in career development is as a means of comparison between the student's own traits with the trait requirements of the work toward which he/she seems inclined.

Training Time Information

What educational development must a student have in order to perform a given job? How long does it take to train a student in the specific knowledge and skills required by a job?

These are essential questions in Vocational Education Planning. The answers are important for the effective and realistic planning of pre-vocational and vocational programs.

The importance of training time as a characteristic of jobs has long been recognized in the United States Employment Service. The job analysis method and concepts used to obtain information for the Dictionary of Occupational Titles identified two types of training experience which are required for successful job performance. The first is related to basic educational development as expressed in general reasoning ability and the use of mathematics and language skills. The second type of training involves the acquisition of specific job knowledge and specific performance skills. These two types of training are called: (1) General Educational Development, (GED), and, (2) Specific Vocational Preparation, (SVP).

These job-requirements concepts, along with others, called aptitudes, interests, temperaments, physical demands, and working conditions, are known as Worker Traits and are the basis of the Worker Traits arrangement in Volume II of the D. O. T.

Ratings which indicate the amount of General Educational

Development and Specific Vocational Preparation typically required to perform any job defined in the Dictionary of Occupational Titles have been published in two supplementary volumes. The first is entitled Selected Characteristics of Occupations, A Supplement to the Dictionary of Occupational Titles. Jobs, with their GED and SVP ratings, are arranged in this volume in numerical order according to the six digit occupational code numbers which are assigned to all jobs in the Dictionary. A second volume, entitled Selected Characteristics of Occupations by Worker Traits and Physical Strength, Supplement to the Dictionary of Occupational Titles, contains the same information but presents the job and ratings arranged first into Worker Trait groups as found in the Worker Traits arrangement, and secondly according to the degrees of strength required to perform the jobs.

These ratings can serve as a valuable guide both in planning and in evaluating various aspects of vocational programs. They enable the planner to have some foreknowledge of the training requirements that individual jobs make upon potential workers.

The data are particularly relevant because of the method by which the ratings were obtained. Rather than by a statistical approach in which, for example, employers, unions, or professional associations were canvassed regarding their training time standards, the sole basis for determining the ratings was a job analysis of the duties performed. This analysis was made independently of employer requirements or

other arbitrary standards, and independently of the years of schooling completed by job incumbents. The attainment of average successful job performance was the fundamental criterium used in making the ratings of general and specific training required by the jobs.

The Concept of General Education Development

Definition and Meaning

The idea underlining General Education Development is that some amount of general education and/or life experience is necessary for the satisfactory performance of any given job. The amount required varies according to the nature and complexity of the job.

GED is defined as follows: General Education Development embraces those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions, and (b) acquisition of "tool" knowledges, such as language and mathematical skills. It is education of a general nature which does not have a recognized, fairly specific, occupational objective. Ordinarily such education is obtained in elementary school, high school, or college. It also derives from experience and individual study.

A number chart was published in the third edition of the D.O.T. to define six levels of GED requirement. The factors of reasoning, mathematics, and language were described in three parallel columns.

GENERAL EDUCATIONAL DEVELOPMENT

Level	Reasoning Development	Mathematical Development	Language Development
6	Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Apprehend the most abstruse classes of concepts.	Apply knowledge of advanced mathematical and statistical techniques such as differential and integral calculus, factor analysis, and probability determination, or work with a wide variety of theoretical mathematical concepts and make original applications of mathematical procedures, as in empirical and differential equations.	Comprehension and expression of a level to— —Report, write, or edit articles for such publications as newspapers, magazines, and technical or scientific journals. Prepare and draw up deeds, leases, wills, mortgages, and contracts. —Prepare and deliver lectures on politics, economics, education, or science. —Interview, counsel, or advise such people as students, clients, or patients, in such matters as welfare eligibility, vocational rehabilitation, mental hygiene, or marital relations. —Evaluate engineering technical data to design buildings and bridges.
5	Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions, in books, manuals, and mathematical or diagrammatic form. Deal with several abstract and concrete variables.		
4	Apply principles of rational systems [1] to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.	Perform ordinary arithmetic, algebraic, and geometric procedures in standard, practical applications.	Comprehension and expression of a level to— —Transcribe dictation, make appointments for executive and handle his personal mail, interview and screen people wishing to speak to him, and write routine correspondence on own initiative. —Interview job applicants to determine work best suited for their abilities and experience, and contact employers to interest them in services of agency. —Interpret technical manuals as well as drawings and specifications, such as layouts, blueprints, and schematics.
3	Apply common sense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	Make arithmetic calculations involving fractions, decimals, and percentages.	Comprehension and expression of a level to— —File, post, and mail such material as forms, checks, receipts, and bills. —Copy data from one record to another, fill in report forms, and type all work from rough draft or corrected copy. —Interview members of household to obtain such information as age, occupation, and number of children, to be used as data for surveys or economic studies. —Guide people on tours through historical or public buildings, describing such features as size, value, and points of interest.
2	Apply common sense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.	Use arithmetic to add, subtract, multiply, and divide whole numbers.	
1	Apply common sense understanding to carry out simple one- or two-step instructions. Deal with standardized situations with occasional or no variables in or from these situations encountered on the job.	Perform simple addition and subtraction, reading and copying of figures, or counting and recording.	Comprehension and expression of a level to— —Learn job duties from oral instructions or demonstration. —Write identifying information, such as name and address of customer, weight, number, or type of product, on tags or slips. —Request orally, or in writing, such supplies as linen, soap, or work materials.

[1] Examples of "principles of rational systems" are: Bookkeeping, internal combustion engines, electric wiring systems, house building, nursing, farm management, ship sailing.

U. S. GOVERNMENT PRINTING OFFICE : 1968 O - 294-138

The Concept of Specific Vocational Preparation

Definition and Meaning

Specific Vocational Preparation is defined as: The amount of time required to learn the techniques, acquire information, and develop the facility needed for average performance in a specific job-worker situation. This training may be required in a school, work, military, institutional, or a vocational environment. It does not include orientation training required of every fully qualified worker to become accustomed to the special conditions of any new job. Specific Vocational Training includes training given in any of the following circumstances: (a) vocational education (such as high school, commercial or shop training, technical school, art school, and that part of college training which is organized around a specific vocational objective); (b) apprentice training (for apprenticeable jobs only); (c) in-plant training (given by an employer in the form of organized classroom study); (d) on the job training (servicing as learner to trainee on the job under the instruction of a qualified worker); (e) essential experience in other jobs (serving in less responsible jobs which lead to the higher grade job or serving in other jobs which qualify).

In order to express the amount of Specific Vocational Preparation required by various jobs, the following scale of time periods has been established:

LEVEL	TIME
1	Short demonstration only.
2	Anything beyond short demonstration up to and including 30 days.
3	Over 30 days up to and including 3 months.
4	Over 3 months up to and including 6 months.
5	Over 6 months up to and including 1 year.
6	Over 1 year up to and including 2 years.
7	Over 2 years up to and including 4 years.
8	Over 4 years up to and including 10 years.
9	Over 10 years.

SVP does not represent just the amount of time required to learn a job. It also involves any amount of practice time needed to apply the learning in order to reach a level of average performance. SVP is always measured by performance. The amount of time needed for Specific Vocational Preparation is also an indicator of the complexity of a job. From the definition, it can be seen that there are actually three factors that may influence the required amount of SVP time. These factors have to do with different aspects of job complexity. They are: (1) learning the techniques of the job, (2) acquiring the necessary job knowledge, (3) developing performance facility. A generalization might be made that the more complex a job is, the greater its required training time will be.

The Relationship of GED and SVP

GED and SVP are complementary concepts although they have different types of rating scales. The GED scale is stated in terms of immediate performance capacity levels. The SVP scale is stated in terms of time periods. It is in the combination of these two ideas that the total expression of training time requirement is understood. Just as general education is the base upon which specific training can be built, the GED capacity rating for a job provides a base for the estimation of SVP time.

PHYSICAL DEMANDS

Physical demands are those physical activities required of a worker in a job.

The physical demands listed in this publication serve as a means of expressing both the physical requirements of the job and the physical capacities (specific physical traits) a worker must have to meet the requirements. For example, "seeing" is the name of a physical demand required by many jobs (preceiving by the sense of vision), and also the name of a specific capacity possessed by many people (having the power of sight). The worker must possess physical capacities at least in an amount equal to the physical demands made by the job.

The Factors

1 **Lifting, Carrying, Pushing, and/or Pulling (Strength):** These are the primary "strength" physical requirements, and, generally speaking, a person who engages in one of these activities can engage in all.

Specifically, each of these activities can be described as:

(1) Lifting: Raising or lowering an object from one level to another (includes upward pulling).

(2) Carrying: Transporting an object, usually holding it in the hands or arms or on the shoulder.

(3) Pushing: Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking, and treadle actions).

(4) Pulling: Exerting force upon an object so that the object moves toward the force (includes jerking).

The five degrees of Physical Demands Factor No. 1 (Lifting, Carrying, Pushing, and/or Pulling), are as follows:

S Sedentary Work

Lifting 10 lbs. maximum and occasionally lifting and/or carrying such articles as dockets, ledgers, and small tools. Although a sedentary job is defined as one which involves sitting, a certain amount of walking and standing is often necessary in carrying out job duties. Jobs are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.

L Light Work

Lifting 20 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 10 lbs. Even though the weight lifted may be only a negligible amount, a job is in this category when it requires walking or standing to a significant degree, or when it involves sitting most of the time with a degree of pushing and pulling of arm and/or leg controls.

M Medium Work

Lifting 50 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 25 lbs.

H Heavy Work

Lifting 100 lbs. maximum with frequent lifting and/or carrying of objects weighing up to 50 lbs.

V Very Heavy Work

Lifting objects in excess of 100 lbs. with frequent lifting and/or carrying of objects weighing 50 lbs. or more.

2 **Climbing and/or Balancing:**

(1) Climbing: Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes, and the like, using the feet and legs and/or hands and arms.

(2) Balancing: Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.

3 **Stooping, Kneeling, Crouching, and/or Crawling:**

(1) Stooping: Bending the body downward and forward by bending the spine at the waist.

(2) Kneeling: Bending the legs at the knees to come to rest on the knee or knees.

(3) Crouching: Bending the body downward and forward by bending the legs and spine.

(4) Crawling: Moving about on the hands and knees or hands and feet.

4 **Reaching, Handling, Fingering, and/or Feeling:**

(1) Reaching: Extending the hands and arms in any direction.

(2) Handling: Seizing, holding, grasping, turning, or otherwise working with the hand or hands (fingering not involved).

(3) Fingering: Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm as in handling).

(4) Feeling: Perceiving such attributes of objects and materials as size, shape, temperature, or texture, by means of receptors in the skin, particularly those of the finger tips.

5 **Talking and/or Hearing:**

(1) Talking: Expressing or exchanging ideas by means of the spoken word.

(2) Hearing: Perceiving the nature of sounds by the ear.

6 **Seeing:** Obtaining impressions through the eyes of the shape, size, distance, motion, color, or other characteristics of objects. The major visual functions are. (1) acuity, far and near, (2) depth perception, (3) field of vision, (4) accommodation, (5) color vision. The functions are defined as follows:

(1) Acuity, far—clarity of vision at 20 feet or more. Acuity, near—clarity of vision at 20 inches or less.

(2) Depth perception—three-dimensional vision. The ability to judge distance and space relationships so as to see objects where and as they actually are.

(3) Field of vision—the area that can be seen up and down or to the right or left while the eyes are fixed on a given point.

(4) Accommodation—adjustment of the lens of the eye to bring an object into sharp focus. This item is especially important when doing near-point work at varying distances from the eye.

(5) Color vision—the ability to identify and distinguish colors.

WORKING CONDITIONS

Working conditions are the physical surroundings of a worker in a specific job.

1 **Inside, Outside, or Both:**

I Inside: Protection from weather conditions but not necessarily from temperature changes.

O Outside: No effective protection from weather.

B Both: Inside and outside.

A job is considered "inside" if the worker spends approximately 75 percent or more of his time inside, and "outside" if he spends approximately 75 percent or more of his time outside. A job is considered "both" if the activities occur inside or outside in approximately equal anounts.

2 **Extremes of Cold Plus Temperature Changes:**

(1) Extremes of Cold: Temperature sufficiently low to cause marked bodily discomfort unless the worker is provided with exceptional protection.

(2) Temperature Changes: Variations in temperature which are sufficiently marked and abrupt to cause noticeable bodily reactions.

3 **Extremes of Heat Plus Temperature Changes:**

(1) Extremes of Heat: Temperature sufficiently high to cause marked bodily discomfort unless the worker is provided with exceptional protection.

(2) Temperature Changes: Same as 2(2).

4 **Wet and Humid:**

(1) Wet: Contact with water or other liquids.

(2) Humid: Atmospheric condition with moisture content sufficiently high to cause marked bodily discomfort.

5 **Noise and Vibration:** Sufficient noise, either constant or intermittent, to cause marked distraction or possible injury to the sense of hearing, and/or sufficient vibration (production of an oscillating movement or strain on the body or its extremities from repeated motion or shock) to cause bodily harm if endured day after day.

6 **Hazards:** Situations in which the individual is exposed to the definite risk of bodily injury.

7 **Fumes, Odors, Toxic Conditions, Dust, and Poor Ventilation:**

(1) Fumes: Smoky or vaporous exhalations, usually odorous, thrown off as the result of combustion or chemical reaction.

(2) Odors: Noxious smells, either toxic or nontoxic.

(3) Toxic Conditions: Exposure to toxic dust, fumes, gases, vapors, mists, or liquids which cause general or localized disabling conditions as a result of inhalation or action on the skin.

(4) Dust: Air filled with small particles of any kind, such as textile dust, flour, wood, leather, feathers, etc., and inorganic dust, including silica and asbestos, which make the workplace unpleasant or are the source of occupational diseases.

(5) Poor Ventilation: Insufficient movement of air causing a feeling of suffocation; or exposure to drafts.

INTERESTS

Preferences for certain types of work activities or experiences with accompanying rejection of contrary types of activities or experiences. Five pairs of interest factors are provided so that a positive preference for one factor of a pair also implies rejection of the other factor of that pair.

1. Situations involving a preference for activities dealing with things and objects.	vs.	Situations involving a preference for activities concerned with people and the communication of ideas.
2. Situations involving a preference for activities involving business contact with people.	vs.	Situations involving a preference for activities of a scientific and technical nature.
3. Situations involving a preference for activities of a routine, concrete organized nature.	vs.	Situations involving a preference for activities of an abstract and creative nature.
4. Situations involving a preference for working for people for their presumed good, as in the social welfare sense, or for dealing with people and language in social situations.	vs.	Situations involving a preference for activities that are nonsocial in nature, and are carried on in relation to processes, machines, and techniques.
5. Situations involving a preference for activities resulting in prestige or the esteem of others.	vs.	Situations involving a preference for activities resulting in tangible, productive satisfaction.

TEMPERAMENTS

Different types of occupational situations to which workers must adjust:

1. Situations involving a variety of duties often characterized by frequent change.

2. Situations involving repetitive or short cycle operations carried out according to set procedures or sequences.

3. Situations involving doing things only under specific instruction, allowing little or no room for independent action or judgment in working out job problems.

4. Situations involving the direction, control, and planning of an entire activity or the activities of others.

5. Situations involving the necessity of dealing with people in actual job duties beyond giving and receiving instructions.

6. Situations involving working alone and apart in physical isolation from others, although the activity may be integrated with that of others.

7. Situations involving influencing people in their opinions, attitudes, or judgments about ideas or things.

8. Situations involving performing adequately under stress when confronted with the critical or unexpected or when taking risks.

9. Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against sensory or judgmental criteria.

0. Situations involving the evaluation (arriving at generalizations, judgments, or decisions) of information against measurable or verifiable criteria.

X. Situations involving the interpretation of feelings, ideas, or facts in terms of personal viewpoint.

Y. Situations involving the precise attainment of set limits, tolerances, or standards.

EXAMPLE

In trying to deal with more specifics, we went to the D. O. T. The job descriptions in the Dictionary of Occupational Titles are very specific, almost the opposite of what we were seeing in the Manpower Projection data mentioned previously. The D. O. T. is very specific in terms of job descriptions such as lab aides, lab helper, lab assistant, anything specific to a particular laboratory. Using the base data to interpret the D. O. T. we compiled a list of job titles associated with science careers. The GED and SVP levels were carefully scrutinized so that the job title selected would not require more than a high school education. In other words, we selected the job titles where education at the secondary level would be all that would be necessary in order to perform the particular job duties requred.

On the following page is an example of the results of this search.

ANALYSIS OF SELECTED OCCUPATIONS

D.O.T. Number	OCCUPATIONAL TITLES	Physical Demands	General Education Development (GED)	Specific Vocational Preparation (SVP)	Interests	Worker Temperament
		Refer to Preceeding Pages for Code Interpretation				
029.281	Laboratory Tester I	L 4 6	5 4	7 6 5	1 7 9	O Y
029.381	Laboratory Tester II	L 4 6	5 4	7 6 5	1 7 9	O Y
078.381	Medical Lab Assistant	L 4 6	5 4	7 6 6	1 7 9	O Y
078.687	Lab Assistant, Plasma Drawing Off	S L M 4 5 6	2 3 1	2 3 4	1 3 9	2 Y O 3
079.368	Occupational Therapy Aid	L M 4 6	4	6 7	4 7	5 Y
223.587	Lab Helper (Clerical)	S L M 4 5 6	2 3 1	2 3 4	1 3 9	2 Y O 3

CHOICE OF SAMPLE

One of the major criteria used by educators for determining whether or not to establish or expand a vocational education program is some degree of assurance that there will be jobs for the students who complete such a program.

Occupational labor market research consists of analyses of the demand-supply factors in a particular occupation or group of occupations. It evaluates occupational job opportunities in relation to available labor supply. Since most workers seek employment in specific occupations and employers usually hire workers with specific skills or abilities, occupational labor market information is paramount to a meaningful and practical understanding of the functioning of the total labor market.

In any one state or area, occupational requirements may change markedly as old industries decline and new activities develop. The necessary information should be collected from a representative sample of firms in the area which typically hire workers employed in the occupations being surveyed.

To ascertain future job vacancies and to develop appropriate curricula to properly prepare its graduates for entry into these jobs, educators may utilize information provided by manpower and skills surveys. A scientific sample (stratified-random) of employers is asked

to provide current estimates of employment, estimates for two years hence, and five years in the future. The most efficient sample which will provide valid results for this type of study is one stratified by establishment size which includes all large establishments and a lesser representation of the smaller establishments in the appropriate industries.

For further information regarding the use of a stratified-random sample, refer to the U.S. Department of Labor "Handbook on Labor Market Research Methods", Draft Section (No. 5, Occupational Labor Market Analysis).

A pre-survey, or cover, letter offers several benefits. The purpose of the survey should be outlined briefly and the cooperation and endorsement of the employers sought. It is an excellent form of publicity for the survey inasmuch as it tells employers of the survey and introduces the person or firm conducting the survey. It prepares employers for receipt of the survey questionnaire which can be either included with the cover letter or sent to them at a later date.

EXAMPLE

The Project was underway prior to our knowledge and understanding of the services offered by the Employment Data and Research Division of the Employment Development Department. There are two Employment Data and Research Divisions in California -- one in San Francisco and one in Los Angeles. These research divisions are available to assist in selecting a sample.

Although there are many factors to consider regarding the procedure of selecting a sample, primary concern should be the constraints of time and finances.

If the E. D. D. sampling techniques are either not available or feasible, there are other methods to derive a sample:

1) community contacts (Chamber of Commerce, etc.).

2) direct referral by business or industry.

3) the yellow pages of the geographic area you wish to survey.

These additional sources are apt to be biased and should be used with that known restriction.

OPERATIONAL PROCEDURES

With the indicated student interest, we decided to fully document our ideas regarding the needs of industry. We felt a strong need for feedback from industry to education. The cover letter and the accompanying survey illustrate our efforts of surveying and interviewing in our geographical employment community. We found industry to be most cooperative and responsive to us as representatives of the educational system, specifically to the possibilities of developing a course in vocational education for which they could participate and provide input. We would anticipate that any vocational planner who uses this planning process would find the same responsiveness from any industry or occupational area. It was a most rewarding experience and one that nurtures the bond between industry and education.

EXAMPLE

The Cover Letter and Accompanying Survey

It seems there is no published document on the right and proper way to write a cover letter that accompanies a survey to industry. We formulated a letter to describe to industry what we had in mind in the way of a course of study and what information we wanted from them. The first step was to send a letter to a "person", not to a "position". We went to the yellow pages of the telephone books of the area in which we were going to survey and looked up all of the laboratories, the hospitals, and any other employer that might have some input for the occupational title, MEDICAL LABORATORY ASSISTANT. With the use of some student help, the firms were contacted by phone to get the name of the personnel director, the complete address of the company, etc., and a file was set up for each one of these labs.

The D.O.T. gave us the words to ask specific questions of employers. We wanted the letter to be definitive. We explained that we had done some initial research and we hypothesized that there must be some kind of a labor market for the type of positions that we had in mind. We asked for their help in securing information about their particular firm. We had the delimma of trying to be explanatory and short at the same time -- we wanted a good response but felt it was necessary to be concise.

We included the cover letter with the survey. In keeping with

this philosophy we tried to keep the survey short with only pertinent questions which would help us to develop the course. Questions such as: "Do you employ persons without a college education?" "Do you visualize that you could employ persons like this if you do not now?" It was interesting that we had more yes responses to the latter question which gave us the feeling that if they do not hire people in this area at the present time, they might possibly do so in the future. We asked them if they felt this project merited further research and development, and if they gave a proficiency entry level test to their potential employees.

We made the questions easy to answer only requiring a check to indicate a "Yes" or "No". We debated long and hard as to whether to include the question regarding specialized training. This type of a question in many cases cannot be answered with a simple "Yes" or "No". However, we were not disappointed at the response. Many of the employers included xerox copies of particular techniques and procedures required; others sent us Department of Health specifications as to specific requirements and limitations of the persons they employ.

We also provided a place for the name of a particular person with whom we could make an appointment for futher discussion. Again, we received what we considered a very good response. Sometimes, we received names of different people than those we had addressed the letter to, i.e., the personnel director felt that some other person, the chief lab technician, etc., could better answer our specific questions.

We also included a self-addressed, stamped envelope.

The initial survey was sent to 45 potential employers and the response was 55%. According to people in the business of surveying, this was better than average.

Illustrated on the following pages are a copy of our cover letter and of the accompanying survey. For your information, the survey with the indicated responses is a tally of the responses we received from industry.

SIMI VALLEY HIGH SCHOOL

HOME OF THE PIONEERS

ROBERT J. JACOB PRINCIPAL

Dear

Simi Valley High School, as a part of its Science Department's attempt to improve curriculum, is taking a survey of several laboratory oriented industries to determine if there is sufficient need to provide class offerings to prepare students as lab assistants. If we find that a need exists, we would attempt to develop a curriculum to support it.

From our minimal experience in the vocational field, we have hypothesized that there exists a job market for the graduating high school student who wishes to be employed in a science related field. We visualize a position in which a high degree of competence in the performance of repetitive laboratory tests and/or preparation is needed. This would be a position requiring reliability in routine lab work, but not necessarily the responsibility of analysis or supervision expected from a college or technical school graduate.

We are writing to you because you may possibly have a job description and/or employ persons in this general career category. We have enclosed a short questionnaire which we hope you will complete. We thank you for your time and consideration.

Sincerely yours,

Wayne Hollins

Wayne Hollins
Chairman, Science Department

WH:kh

3400 COCHRAN, SIMI VALLEY, CALIF. 93063 PHONE 526-0330

CURRICULUM IMPROVEMENT SURVEY

1. Do you employ persons without a college education to perform laboratory procedures? ___Yes ___No

2. Could you visualize hiring a high school graduate whose experience was limited to a training course which included work observations? ___Yes ___No

3. In the light of your hiring/job descriptions does this idea merit further research and development? ___Yes ___No

4. Do you use a proficiency level entry test to determine employment which may be functional in assessing ability levels of our graduates? ___Yes ___No

5. Is there someone with whom I could make an appointment for further discussion of this concept? ___Yes ___No

_____ _____
Name Phone

6. What specialized training, i.e., laboratory techniques and procedures, manipulative skills, science understanding, etc., would qualify a student for employment at your particular facility?

_____

_____

_____

CURRICULUM IMPROVEMENT SURVEY

1. Do you employ persons without a college education to perform laboratory procedures? (15) Yes (6) No

2. Could you visualize hiring a high school graduate whose experience was limited to a training course which included work observations? (17) Yes (4) No

3. In the light of your hiring/job descriptions does this idea merit further research and development? (16) Yes (4) No

4. Do you use a proficiency level entry test to determine employment which may be functional in assessing ability levels of our graduates? 0 Yes (22) No

5. Is there someone with whom I could make an appointment for further discussion of this concept? (15) Yes (6) No

_____ Name _____ Phone

6. What specialized training, i.e., laboratory techniques and procedures, manipulative skills, science understanding, etc., would qualify a student for employment at your particular facility?

_____

_____

_____

EXAMPLE

Interview Techniques

Responding to the persons who on their survey returns had volunteered further input, we arranged an appointment to meet with them at their convenience. We are including those comments regarding the interviews which seem most significant.

Regarding the interview technique itself, we had been advised not to spend any more than 15 minutes in an interview. Because the persons from industry were so very anxious to talk to us, no interview lasted less than 45 minutes. In most cases we were the first people from education to come to them to solicit their assistance in developing an educational program.

We used MMIS Form #5 to structure a pattern for our interview. A copy is included for your reference. Note that the content and pattern of information sought allows for an atmosphere of informality and an ease of question formulation to occur. Prior to the interview we had provided the name of the company, the address, the name of the contact person who we would be interviewing and his/her telephone number, and the date of the particular interview.

Throughout the laboratories we visitied we found a variety of job titles that describe what is functionally the same job. For example, one firm referred to their employees as Laboratory Aides I and II, while another firm gave their employees job titles of Reagent

Preparer and Specimen Preparer.

In spite of differing job titles, the job descriptions were similar. The employers told us that Laboratory Assistants work under the supervision of a Registered Clinical Laboratory Technologist and perform a variety of standard laboratory procedures, such as preparing specimens, setting up equipment in the lab, identifying and labeling the specimens, and cleaning and maintaining the laboratory utensils and equipment according to established standards. They are often required to keep the records for the testing that is in progress or completed. The employers description of duties was, in most cases, similar to the Dictionary of Occupational Titles. This was of assistance in the verification process of our earlier D. O. T. search. It was also of assistance in the student selection process for the course of study because the employers identified the specific worker traits and job duties.

All of the employers interviewed preferred to hire people with a high school diploma. In the job descriptions, a high school diploma was desirable, with courses in Chemistry, Biology, and Mathematics. In further questioning, we determined that the employers are seeking workers with a knowledge of basic science and a sincere desire to work. They felt that persons above the age of eighteen were better candidates for the jobs because they demonstrate a more responsible attitude.

There are no spcialized training programs in the geographical area that we surveyed. Employers stated that they would prefer entry level positions to require specialized training but that most training is performed on-the-job. Ninety percent of the employers we interviewed were willing to contribute to the curriculum development of a course in science related careers. They indicated that the education and training that would be received by the students through such a course would greatly shorten the amount of time required in on-the-job training. This would be a definite cost savings to the laboratories.

Entry level wage information was collected from the employers in order to update and localize the salaries for the related job titles. The salary information will be included in the career exploration unit of the course of study. The salary data in the most recent edition of the Occupational Outlook Handbook (1974-75) was obtained in 1973, and considerable outdated.

We had a twofold purpose in asking for the number of people currently employed in each job category. First, we wanted to localize the employment data to include actual figures. Second, the information was needed as a contributing factor in determining class size and future placement possibilities for the students in the Science Career Training Program. It was not intended to confirm or deny any of the Industry-Occupation Matrix figures.

The employers interviewed were unable or hesitant to estimate

the number of employees by category for the following year and five years hence. This reconfirmed the expert opinion of labor market analyst that employers have a difficult task in projecting future employment needs.

A. NAME OF FIRM/BUSINESS | ADDRESS | CITY | ZIP CODE

B. TYPE OF PRODUCT/SERVICE | C. TOTAL NUMBER OF EMPLOYEES 26-100 101-500 Over 500

D. CONTACT PERSON | PHONE | EXT. | DATE

E. TYPICAL ENTRY LEVEL JOBS:

Those occupations for which employers will accept and hire workers with little or no experience, plus those occupations which require a specific skill and/or experience obtainable through an occupational training program at the secondary school or community college level.

PLEASE CHECK JOBS APPLICABLE TO YOUR FIRM AND ADD ANY APPROPRIATE JOB TITLES NOT LISTED

✓	1) TITLE OF JOB	2) DESCRIPTION OF DUTIES	3) EDUCATIONAL REQUIREMENTS			4) IS SPECIALIZED SKILL TRAINING DESIRABLE FOR THIS OCCUPATION?		5) TYPICAL ENTRY LEVEL WAGE			6) NUMBER CURRENTLY EMPLOYED IN THIS JOB CATEGORY	7) ESTIMATED NUMBER OF EMPLOYEES IN EACH CATEGORY BY	
			Less Than High Sch.	High School	Two Year College	Yes	No	HOURLY	WEEKLY	MONTHLY		1975	1980

VCSS 3518
5-76

MCLA Form 83

EXAMPLE

Follow-Up Letter

When the interviews were completed, we began the task of formulating a follow-up letter. A good deal of thought and time went into the construction of the letter. We did not want it to be too lengthy but we did want to exemplify the list of categories that were being considered for inclusion in the curriculum. The main purpose of the letter, however, was to say "Thank you".

Mr. Hollins asked for some additional thoughts and ideas on specific details. MMIS Form #6 (Instructional Resource Survey) was included with the follow-up letter. The form was time consuming, asking if audio-visual materials can be provided, personnel for guest speakers arranged, etc. We were disappointed with the lack of feed-back but have not made any assumptions as to why the response was less than the first survey. We have hypothesized that the survey may have been too involved or that the employers were not able to provide the information.

Some of the employers who responded to the initial survey and were interviewed have offered to serve on the Advisory Committee for the Science Related Careers Program. It is anticipated that the information Form #6 requests will be provided by the members of that committee during the meetings that will be held in the coming year.

The follow-up letter and the accompanying survey are illustrated on the following pages.

SIMI VALLEY HIGH SCHOOL

HOME OF THE PIONEERS

ROBERT J. JACOB PRINCIPAL

First of all, thank you for your time and positive response regarding our planned Science Careers Curriculum. With the response you have given, this project is becoming very exciting.

Much time has passed, but as a result of our visits I have compiled a list of categories to be included in the curriculum:

- Introduction to basic chemistry
- Introduction to basic biology
- Scientific/medical terminology
- Scientific measurement
- Data collecting/recordkeeping
- General laboratory/safety techniques
- Specific laboratory manipulations (such as the use of specialized laboratory apparatus and the conducting of particular tests)
- Laboratory simulations (the classroom functioning as a simulation of a functioning commercial laboratory)

These have been incorporated into a tentative curriculum design intended to provide a basic science grounding for all students plus areas for further and more intensive training. I have enclosed this design on another sheet. Currently I am consulting with publishers in order to evaluate possible textbooks and manuals for resource materials.

I also need more ideas from you on some specific details:

1) Are there any areas that I missed in setting up the list of categories?

2) Inasmuch as most of the laboratory equipment has a sophistication and/or cost rendering its use in a high school laboratory unfeasible -- do you have any suggestions for instructional methods and/or lower priced

3400 COCHRAN, SIMI VALLEY, CALIF. 93063 PHONE 526-0330

equipment capable of providing valid alternative experiences? We will have computer terminals available to assist in providing simulated experiences.

3) I would also like a list of laboratory equipment and apparatus that you feel should necessarily be included for student use. Include items based on need with minor consideration for cost -- that constraint will come later.

In some of these or other instances you may have resources which could afford invaluable experiences for the students. I am enclosing an Instructional Resource Survey which I would like you to fill out and return. Every resource is significant. For instance, as someone pointed out, the completion of the Job Application is a most important first step which is often overlooked.

I realize that this is very demanding of your time but I have no resource which can begin to substitute for your expertise in providing direction for this type of program. Now that a pattern is beginning to emerge, if you feel that it would be of value to get together again, perhaps with more people, I would be most happy to arrange another appointment. Again our thanks to you for your very favorable response and valuable contributions to our planning.

Sincerely yours,

Wayne C. Hollins
Curriculum Development
Specialist

WCH:pk

A. NAME OF FIRM/BUSINESS | B. ADDRESS | CITY | ZIP CODE

C. TYPE OF PRODUCT/SERVICE | D. TOTAL NUMBER OF EMPLOYEES 26-100 101-500 - OVER 500

E. CONTACT PERSON | PHONE | EXT. | DATE

F. INSTRUCTIONAL RESOURCE SURVEY:
Please fill in the information as completely as possible for those items listed that are available from your business/industry.

1. INSTRUCTIONAL MATERIALS

a. Supplies	b. Manuals	c. Literature
(1)		
(2)		
(3)		
(4)		
(5)		

2. AUDIO-VISUAL MATERIALS

a. Films	8mm	16mm	b. Transparencies	c. Slides

3. EQUIPMENT

	Loan	Gift	New	Used	Pick-up	Deliver
(1)						
(2)						
(3)						
(4)						
(5)						

4. FIELD TRIPS

Areas of Interest	Preferred Group Size: Students	Preferred Group Size: Educators

5. PERSONNEL

a. Speakers	b. Instructors	c. Trade Advisory Committee	Subject Area
(1)			
(2)			
(3)			
(4)			

6. FINANCIAL ASSISTANCE

Scholarships ☐ Grants ☐ Foundations ☐ Loans ☐ Other _____

BMCE Form 86

STUDENT NEEDS ASSESSMENT

One of the twelve functions of vocational education is Population Needs Analysis. It includes parental influences, geographic mobility, community preference, and student interest. All of these considerations feed into "student needs".

The Career Planning Inventory (C. P. I.) was originally designed to provide the basic information required to comply with the Population Needs Analysis Function of a District Plan for Vocational Education. The C. P. I. is given to every ninth, tenth, eleventh, and twelfth grade student in Ventura County, as well as to students in Los Angeles, San Bernadino, Riverside, and other counties in the State.

After three years of development and implementation, additional information is processed to be utilized by students as well as educational personnel to aid them in making meaningful decisions. Computer reports include individual student profiles, school and district summaries, and a county summary. These reports are utilized for local district program planning and articulated planning between the district and other educational agencies, identification of students with special interest or needs, and providing students with a stimulus to explore their various career options.

The C. P. I. and its related reports have evolved into a five component system for occupational counselors and vocational education planners:

1. The Educational and Career Planning Questionnaire
2. The Student Career Planning Profile
3. The Occupational Brochure and Brief
4. The School Summary Reports
5. The County Summary Statistical Reports

The Educational and Planning Questionnaire is illustrated on the following pages (4), followed by an explanation of the remaining components of the C. P. I.

EDUCATIONAL AND CAREER PLANNING QUESTIONNAIRE

NAME _____ SEX: Male ☐ Female ☐
Last First Initial

ADDRESS _____ PHONE _____
Number Street City Zip Code

SCHOOL _____ GRADE _____ COUNSELOR _____

Please print information as requested at the top of this sheet. The following questions are about your educational and career plans. Each question is important. Your answers will be used to help you understand your educational and career goals and to provide you with information about appropriate careers. Read each question carefully and answer it as best you can. You are to mark only one answer for each question unless the directions tell you to mark more than one answer. To indicate your choice simply circle the number in front of your answer.

A. **The following courses of study are offered in most high schools. My present course of study is:**

1. General Education
2. Business Education
3. Vocational Agriculture
4. Fine Arts
5. Industrial Education
6. Home Economics
7. College Prep. (Math/Science)
8. College Prep. (English/Social Sciences)
9. College Prep. (General Program)
10. Combination of two or more of 1 - 9

B. **How sure am I about my choice of a course of study?**

1. Very sure. It is exactly what I want.
2. Somewhat sure. I think it is what I want.
3. Doubtful. I am not too sure it is what I want.
4. I realize now I am in the wrong course of study.

C. **TWO of the following types of work which are of most interest to me at this time are:**

1. Artistic (creative work involving design, color and materials or the performing arts such as music, drama or dance)
2. Clerical (work involving precision, order and accuracy)
3. Computational (work involving mathematics or numbers)
4. Health Services (work involving health care of people or animals)
5. Literary (work involving reading and writing)
6. Mechanical (work involving machines and tools)
7. Outdoor (work that keeps you outside most of the time in all kinds of weather)
8. Persuasive (work involving sales, advertising, and/or public relations)
9. Scientific (work involving discovery, understanding and problem solving in nature and the physical world)
10. Social Service (work involving helping other people)

VENTURA COUNTY SUPERINTENDENT OF SCHOOLS OFFICE
Department of Occupational Education **** Regional Occupational Program

VCSS No. 3508
Revised December 1973

D. How sure am I that my responses to question "C" really are my strongest interests?

1. Certain. My career interests are very firm.
2. Fairly sure. My career interests are rather clear.
3. A little uncertain. My career interests are fairly clear.
4. Very uncertain. My career interests are not clear at all.

E. TWO of my strongest aptitudes or talents are:

1. General learning (closely related to doing well in school)
2. Verbal (ability to work with and understand written and oral information)
3. Numerical (ability to work well with numbers and mathematics)
4. Spatial (ability to picture something in my mind from a drawing)
5. Form perception (ability to see important details and differences)
6. Clerical (ability to work well with details in numbers or words)
7. Eye-hand coordination (ability to make a movement response accurately and swiftly)
8. Finger dexterity (ability to work with small objects rapidly)
9. Manual dexterity (ability to move my hands easily and skillfully)

F. How sure am I that my responses to question "E" really are my strongest aptitudes?

1. Certain
2. Fairly sure
3. A little uncertain
4. Very uncertain

G. I would like a career with the following job characteristics: (circle FIVE of those you would like)

1. Involves a high level of responsibility – makes key decisions involving property, finances or human safety and welfare
2. Directs activities of others – work involves supervisory responsibility
3. Works under close supervision – job performance and work standards controlled by a supervisor
4. Has repetitious work – performs the same task on a continuing basis
5. Competes with other people on the job for recognition and advancement
6. Works with details on a continuing basis – may be numbers, written materials or technical data
7. Sees the physical results of work – produces a tangible product
8. Has an opportunity for self-expression – freedom to use one's own ideas
9. Helps people – assists people in a helping relationship
10. Works independently – requires initiative, self-discipline and the ability to organize
11. Works as part of a team – interacts with fellow employees in performing work
12. Requires physical stamina – involves continued lifting, standing and walking
13. Works overtime or shift work – works hours other than normal, daytime shifts
14. Works with ideas – uses intellect to solve problems
15. Works with people – requires a pleasing personality and ability to get along with others
16. Works with things – job generally requires manual skills
17. Works at one work setting – generally confined to work area
18. Has jobs widely scattered – jobs are located in most areas of the United States
19. Motivates others – must be able to influence others

H. Based upon facts I have now, my plan for the future is:

1. To graduate from high school and go right to work with no further education.
2. To join the armed forces.
3. To enter an apprenticeship program.
4. To get further training at a trade, technical or business school.
5. To complete a junior college program involving two years of training or less.
6. To start at a junior college then transfer to a four year college.
7. To go right to a four year college or university.
8. To attend more than four years of college.

I. Is there any reason why you may not be able to graduate from high school?

1. Yes 2. No

J. I wish to talk to a counselor about (circle as many as apply):

1. High school education requirements.
2. Post high school technical (community college) and trade school opportunities.
3. Four year college entrance requirements.
4. Scholarships or other financial aids to attend a private school, junior college or four year college.
5. I do not wish to talk to a counselor about any of the above.

K. I estimate my grades since 8th grade to be:

1. Mostly A's
2. Mostly A's and B's
3. Mostly B's
4. Mostly B's and C's
5. Mostly C's
6. Mostly C's and D's
7. Mostly D's

L. Please note your need at this time for help with educational and career planning:

1. I need considerable help in figuring out what I am going to do.
2. I have some things planned but could use additional help.
3. I do not need additional help at this time as plans are pretty clear.

M. Do you have any physical handicaps that limit you in any way?

1. Yes 2. No

N. Some high school students ride a bus to an area vocational school so they can take special courses. Are you willing to attend an area school (no more than 30 miles from your school) if the vocational courses you wish to take are not offered at your school? Please circle your answer.

1. Yes 2. No

O. You probably have some idea of the occupation(s) you would like to enter. Please select your first and second choices (TWO ONLY) from the 126 occupations listed by placing a "1" in front of your first choice and a "2" in front of your second choice. If the occupation(s) in which you are interested are not listed, please pick related occupation(s) or place an "X" in the box marked "other" and write in the occupation(s) you prefer. If you do not have any idea of the occupation you would like to enter, please place an "X" in the box marked "undecided."

BUSINESS AND COMMERCE

____ 001 Accountant
____ 003 Advertising Worker
____ 005 Auto Salesman
____ 007 Automobile Parts Counterman
____ 009 Bank Teller
____ 010 Bookkeeper
____ 011 Cashier
____ 013 Clerk Typist
____ 015 Computer Operator
____ 017 Hotel/Motel Clerk
____ 019 Insurance Agent
____ 021 Keypunch Operator
____ 023 Manufacturers' Salesman
____ 025 Personnel Worker
____ 027 Public Relations Worker
____ 029 Purchasing Agent
____ 031 Real Estate Salesperson
____ 033 Receptionist
____ 035 Restaurant Manager
____ 037 Retail Sales Clerk
____ 039 Secretary/Stenographer
____ 041 Stockbroker
____ 043 Telephone Operator

APPLIED AND PERFORMING ARTS

____ 101 Actor/Actress
____ 103 Commercial Artist
____ 104 Dancer
____ 105 Interior Designer/Decorator
____ 106 Interpreter/Translator
____ 107 Journalist/Newspaper Reporter
____ 109 Lithographer
____ 111 Model
____ 113 Musician/Music Teacher
____ 115 Photographer
____ 117 Photographic Lab. Technician
____ 118 Professional Athlete
____ 119 Radio & Television Announcer
____ 121 Technical Writer

AGRICULTURE AND CONSERVATION

____ 201 Animal Keeper
____ 203 Crop and Fruit Grower
____ 205 Dairy and Livestock Farmer
____ 207 Fish and Game Warden
____ 209 Fisherman
____ 211 Forester
____ 213 Forestry Technician
____ 215 Gardener/Grounds Keeper
____ 216 Horse Trainer/Breeder
____ 217 Nurseryman/Landscaper
____ 219 Poultry Rancher

SKILLED TRADES AND REPAIR

____ 301 Air Conditioning, Refrigeration and Heating Mechanic
____ 303 Aircraft Mechanic
____ 305 Appliance Serviceman
____ 309 Automobile Body Repairman
____ 311 Automobile Mechanic
____ 313 Automobile Painter
____ 315 Automobile Transmission Repairman
____ 317 Bricklayer
____ 319 Business Machine Serviceman
____ 321 Carpenter
____ 323 Cement Mason
____ 325 Electrician
____ 327 Farm Equipment Mechanic
____ 329 Heavy Equipment Operator
____ 331 Industrial Machinery Repairman
____ 333 Lineman
____ 337 Machinist
____ 339 Motorcycle Mechanic
____ 340 New Car Get Ready Man
____ 341 Painter/Paperhanger
____ 343 Plumber
____ 344 Service Station Attendant
____ 345 Television and Radio Repairman
____ 347 Welder

PUBLIC SERVICES

____ 401 Air Traffic Controller
____ 403 Airplane Pilot
____ 405 Airline Stewardess
____ 407 Beauty Operator
____ 409 Bus Driver
____ 411 Clergyman/Religious Worker
____ 413 Cook/Chef
____ 415 Counselor
____ 417 Custodian
____ 419 Fireman/Fire Fighter
____ 423 Home Economist
____ 425 Lawyer
____ 427 Librarian
____ 428 Military Service
____ 429 Nursery School Teacher
____ 431 Police Officer
____ 433 Probation Officer/Parole Agent
____ 435 Psychologist
____ 437 Recreation Worker
____ 439 Social Worker
____ 441 Teacher
____ 443 Truck Driver
____ 445 Waiter/Waitress

ENGINEERING, SCIENTIFIC AND TECHNICAL FIELDS

____ 501 Architect
____ 503 Biologist
____ 505 Chemical Engineer
____ 507 Chemist
____ 509 Civil Engineer
____ 511 Computer Programmer
____ 513 Draftsman
____ 515 Electrical Engineer
____ 517 Engineering/Science Technician
____ 519 Geologist
____ 521 Mathematician
____ 523 Mechanical Engineer
____ 525 Oceanographer/Marine Biologist
____ 527 Surveyor
____ 529 Systems Analyst

HEALTH SERVICES

____ 601 Dental Assistant
____ 603 Dental Hygienist
____ 605 Dentist
____ 607 Hospital Administrator
____ 609 Hospital Attendant/Nurse Aide
____ 611 Licensed Vocational Nurse
____ 613 Medical Assistant
____ 615 Medical Laboratory Worker
____ 617 Occupational Therapist
____ 619 Optometrist
____ 621 Pharmacist
____ 623 Physical Therapist
____ 625 Physician/Doctor
____ 627 Registered Nurse
____ 629 Veterinarian
____ 631 X-ray Technician

☐ 998 Other _____
_____
_____

☐ 999 Undecided

Student Career Planning Profile

The Student Career Planning Profile summarizes each individual student's educational and career plans per his responses on the Educational and Career Planning Questionnaire.

In addition to summarizing the student's educational and career plans, new information is provided for students by comparing interest, job characteristics, and educational plans chosen by each student with the interest areas, job characteristics and requirements, and educational requirements usually associated with each of 124 different occupations.

It should be remembered that the educational and career planning questionnaire is not to be considered as a predictive instrument. The list of "other occupations you may wish to explore" is only a partial list of some occupations that are consistent with the interests, educational plans and job characteristics which a student selects on the educational and career planning questionnaire.

THESE TYPES OF WORK INTEREST ME

C.

TWO of the following types of work which are of most interest to me at this time are:

MY PRESENT COURSE OF STUDY

A.

The following courses of study are offered in most high schools. My present course of study is:

MY STRONGEST APTITUDES

E.

TWO of my strongest aptitudes or talents are:

MY FUTURE PLANS

H.

Based upon facts I have now, my plans for the future are:

COUNSELING ASSISTANCE

L.

Please note your need at this time for help with educational and career planning:

DESIRABLE JOB CHARACTERISTICS

G.

I would like a career with the following job characteristics: (circle FIVE of those you would like)

STUDENT CAREER PLANNING PROFILE

SUZANNE SMITH (NAME: LAST, FIRST, MIDDLE) 10 (GRADE) FEMALE (SEX) HIGH HIGH SCHOOL (SCHOOL) OXNARD (DISTRICT) JONES (COUNSELOR)

415 SPACE AGE (STREET) MODERN CITY (CITY) CALIF. (STATE) 91066 (ZIP CODE) 805 429 8705 (TELEPHONE) 07-24-73 (DATE)

MY COURSE OF STUDY IS COMBINATION OF TWO OR MORE. I AM NOT TOO SURE IT IS WHAT I WANT.

LITERARY AND SOCIAL SERVICE TYPES OF WORK APPEAR TO BE OF MOST INTEREST TO ME.

I AM PRETTY SURE OF THIS AT THIS TIME. I THINK GENERAL LEARNING AND FORM PERCEPTION ARE MY STRONGEST APTITUDES. I AM PRETTY SURE ABOUT MY APTITUDES. I ESTIMATE MY GRADES TO BE MOSTLY B's

I PLAN TO GO RIGHT TO A FOUR YEAR COLLEGE OR UNIVERSITY.

I NEED ADDITIONAL HELP WITH EDUCATIONAL AND CAREER PLANNING.

* INDICATES AN OCCUPATION REQUIRING MORE THAN 4 YEARS OF COLLEGE (SEE BOX IN LOWER RIGHT HAND CORNER)

MY PRESENT OCCUPATIONAL CHOICES ARE:

(1) AIRLINE STEWARDESS (N1.3)

(2) SOCIAL WORKER (V2.4+)

☐ UNDECIDED ☐ OTHER

I WOULD LIKE A CAREER WHERE THE JOBS INVOLVE

- ☐ A HIGH LEVEL OF RESPONSIBILITY
- ☐ DIRECTING ACTIVITIES OF OTHERS
- ☐ WORKING UNDER CLOSE SUPERVISION
- ☐ PERFORMING THE SAME TASK ON A CONTINUING BASIS
- ☐ COMPETING WITH OTHERS FOR RECOGNITION AND ADVANCEMENT
- ☐ WORKING WITH DETAILS – NUMBERS, WRITTEN MATERIALS OR TECHNICAL DATA
- ☐ SEEING THE PHYSICAL RESULTS OF WORK
- [X] FREEDOM TO USE ONE'S OWN IDEAS
- [X] HELPING PEOPLE
- ☐ WORKING INDEPENDENTLY WITH INITIATIVE AND SELF DISCIPLINE
- ☐ WORKING AS PART OF A TEAM
- ☐ WORK REQUIRING PHYSICAL STRENGTH AND ENDURANCE
- ☐ OVERTIME WORK OR OTHER THAN NORMAL HOURS
- ☐ WORKING WITH IDEAS TO SOLVE PROBLEMS
- [X] ABILITY TO GET ALONG WITH OTHERS
- ☐ WORKING WITH THINGS USING MANUAL SKILLS
- ☐ WORKING AT ONE PLACE CONFINED TO WORK AREA
- [X] MANY LOCATIONS OF EMPLOYMENT
- [X] MOTIVATING AND INFLUENCING OTHERS

OTHER OCCUPATIONS YOU MAY WISH TO EXPLORE

HOME ECONOMIST	(2.5+)
* CLERGYMAN/RELIG. WORKER	(2.4+)
NURSERY SCHOOL TEACHER	(2.4+)
SOCIAL WORKER	(2.4+)
* TEACHER	(2.4-)
* PSYCHOLOGIST	(2.3)
INTERPRETER/TRANSLATOR	(2.3)
PROB OFFICER/PAROLE AGENT	(1.4+)
RECREATION WORKER	(1.4+)
* COUNSELOR	(1.3+)

VENTURA COUNTY SUPERINTENDENT OF SCHOOLS OFFICE • • • • • • • DEPARTMENT OF OCCUPATIONAL EDUCATION

STUDENT CAREER PLANNING PROFILE

SUZANNE SMITH — 10 — FEMALE — MUGU HIGH SCHOOL — OXNARD — JONES

445 SPACE AGE — MODERN CITY — F. 91066 — 805 429 8705 — 07-24-73

MY COURSE OF STUDY IS COMBINATION OF TW... T TOO SURE IT IS WHAT I WANT.

LITERARY ... TYPES OF WORK APPLAR TO BE OF MOST INTEREST TO ME.

I AM PRETTY SU... NERAL LEARNING AND FORM PERCEPTION ARE MY

STRON... OUT MY APTITUDES. I ESTIMATE MY GRADES TO BE MOSTLY B's

MY PRESENT OCCUPATIONAL CHOICES ARE

(1) AIRLINE STEWARDESS (N1.3)

(2) SOCIAL WORKER (Y2.4+)

☐ UNDECIDED ☐ OTHER

OTHER OCCUPATIONS YOU MAY WISH TO EXPLORE

HOME ECONOMIST	(2.5+)
* CLERGYMAN/RELIG. WORKER	(2.4+)
NURSERY SCHOOL TEACHER	(2.4+)
SOCIAL WORKER	(2.4+)
* TEACHER	(2.4-)
PSYCHOLOGIST	(2.3)
INTERPRETER/TRANSLATOR	(2.3)
...OB OFFICER/PAROLE AGENT	(1.4+)
...REATION WORKER	(1.4+)
...SELOR	(1.3+)

...ATIONAL EDUCATION

BUSINESS AND COMMERCE

001 Accounting
003 Advertising Worker
005 Auto Salesman
007 Automobile Parts Counterman
009 Baker
011 Bank Teller
013 Bookkeeper
015 Cashier
017 Clerk Typist
019 Computer Operator
021 Hotel Clerk
023 Insurance Agent
025 Manufacturing Salesman
027 Manufacturing Worker
029 Personnel Worker
031 Public Relations Man
033 Purchasing Agent
035 Real Estate Salesman
037 Receptionist
039 Restaurant Manager
041 Retail Sales Clerk
043 Secretary/Stenographer
045 Stockholder
047 Teletype Operator

APPLIED AND PERFORMING ARTS

101 Actor/Actress
103 Commercial Artist
105 Dancer
107 Interior Designer
109 Interpreter/Translator
111 Interpreter/Translator
113 Lithographer
115 Music
117 Musician/Music Teacher
119 Photographer
121 Photographic Laboratory Tech
123 Professional Athlete
125 Radio and Television Announcer
127 Technical Writer

AGRICULTURE AND CONSERVATION

201 Animal Keeper
203 Crop and Fruit Grower
205 Livestock and Dairy Farmer
207 Fish and Game Warden
209 Fisherman
211 Forester
213 Forestry Technician
215 Gardener/Groundskeeper
216 Horse Trainer/Director
217 Horticulturist/Landscaper
219 Poultry Rancher

SKILLED TRADES AND REPAIR

301 Air Conditioning, Refrigeration and Heating Mechanic
303 Aircraft Mechanic
305 Appliance Servicemen
307 Automobile Body Repairman
309 Automobile Mechanic
311 Automobile Painter
313 Automobile Transmission Repairman
315 Brick Layer
317 Business Machine Serviceman
319 Carpenter
321 Cement Mason
323 Electrician
325 Farm Equipment Operator
327 Heavy Equipment Operator
329 Industrial Machinery Repairman
331 Lineman
333 New Car Get Ready Man
335 Machinist
337 Motorcycle Mechanic
339 Painter
341 Plumber
343 Television and Radio Repairman
345 Tool and Die Maker
347 Welder

PUBLIC SERVICES

401 Air Traffic Controller
403 Airline Pilot
405 Airline Stewardess
407 Beauty Operator
409 Bus Driver
411 Clergyman/Religious Worker
413 Cook/Chef
415 Counselor
417 Coordinator
419 Firefighter/Fireman
421 Gasoline Service Station Attendant
423 Home Economist
425 Lawyer
427 Librarian
428 Military Service
429 Nursery School Teacher
431 Nurse Officer
433 Probation Officer/Parole Agent
435 Psychologist
437 Recreation Worker
439 Social Worker
441 Teacher
443 Truck Driver
445 Waiter/Waitress

ENGINEERING, SCIENTIFIC, TECHNICAL

501 Architect
503 Biologist
505 Chemical Engineer
507 Chemist
509 Civil Engineer
511 Computer Programmer
513 Draftsman
515 Electrical Engineer
517 Engineering Science Technician
519 Geologist
521 Mathematician
523 Mechanical Engineer
525 Oceanographer/Marine Biologist
527 Surveyor
529 Systems Analyst

HEALTH SERVICES

601 Dental Assistant
603 Dental Hygienist
605 Dentist
607 Hospital Administrator
609 Hospital Attendant/Nurse Aide
611 Licensed Vocational Nurse
613 Medical Assistant
615 Medical Laboratory Worker
617 Occupational Therapist
619 Optometrist
621 Pharmacist
623 Physical Therapist
625 Physician/Doctor
627 Registered Nurse
629 Veterinarian
631 X-ray Technician

☐ 998 Other

☐ 999 Undecided

73

Occupational Brochures and Briefs

Brochures and briefs have been developed for each of 124 different occupations. Each occupational profile contains a brief description of the occupation, the training usually required for entry into the occupation, and the employment prospects, including the Bureau of Labor Statistics estimates of the nation-wide employment in 1972 and the average annual nation-wide job openings to 1980.

TRUCK DRIVER

DUTIES: Both local and long-distance truck drivers are vital assets to our giant transportation system. Generally, both pick up, transport, and deliver materials, goods, and products of all kinds. The local driver usually works within one metropolitan area, while the other may haul cargo over hundreds of miles. Local truck drivers most often deliver over regular routes or runs, although some may be assigned different routes when they report to work each day. Long-distance truck drivers usually travel routes designated by dispatchers. The truck is generally loaded for the local driver by platform workers, but he may be obliged to unload the merchandise at the customer's place of business. The long-haul driving is a senior driving job with more responsibility and usually better pay than local driving jobs, but the hours are less regular. Long-haul drivers often must spend time away from home. Both jobs require that the workers anticipate problem areas when traveling, drive defensively and with great safety. Also, a certain amount of recordkeeping is usually required.

TRAINING: While there are successful drivers who do not have a high school diploma, many employers prefer that their employees have a high school education or its equivalent. Driver training, automotive mechanics, and English are helpful high school courses. For most jobs you should be 21 years of age, be able to pass a physical examination, and be familiar with traffic laws and safe-driving procedures. You should have good hearing, 20/40 vision (with or without eye glasses), and normal blood pressure. Some companies have more stringent rules. You may have to be at least twenty-five, possess specific height and weight, have at least one year of driving experience, and an excellent driving record. Some employers use aptitude tests for hiring, while others rely on personal interviews. You may be asked to accept temporary assignments before receiving permanent status. Truck drivers are required to have a chauffeur's license (a commercial driving permit). As a new employee, you may be required to ride along with an experienced driver for a time; the company also may provide a short training program. Driving experience can be gained in the Armed Forces. Also a small number of private technical schools offer truck driving courses. The Special Projects Division of Ventura College offers a truck driving course; however, because of its popularity, there is a long waiting list.

EMPLOYMENT PROSPECTS: Employment opportunities for truck drivers should increase moderately through the 1980's, provided economic conditions permit anticipated growth in volume of freight and the spreading of industry throughout the United States.

RELATED CAREERS: Ambulance Driver, Dispatcher, Heavy Equipment Operator, Taxi Driver, and Warehouseman

ESTIMATED EMPLOYMENT-1972			AVERAGE ANNUAL OPENINGS		
Nationwide	California	Ventura County	Nationwide	California	Ventura County
2,170,000	129,436	1,938	62,500	3,739	101

INTERESTS: Outdoor, Mechanical

APTITUDES: General Learning, Eye-Hand Coordination, Manual Dexterity, Clerical

CHARACTERISTICS AND REQUIREMENTS:

1. Works independently -- requires initiative, self-discipline, and the ability to organize
2. Work requires physical stamina -- involves continued lifting, standing, and walking
3. Works overtime or shift work -- works hours other than normal daytime shifts
4. Works with things -- jobs generally require manual skills
5. Works at one setting -- generally confined to work area
6. Jobs widely scattered -- jobs are located in most areas of the United States

---

OTHER SOURCES OF INFORMATION

TITLE: Truck Driver

CALIFORNIA OCCUPATIONAL GUIDE 255

CAREER WORLD Issues: January, 1975

OCCUPATIONAL OUTLOOK HANDBOOK pp. 319-324

FINNEY OCCUPATIONAL GUIDANCE

Unit: 1C Volume: 1 Number: 9

VOCATIONAL BIOGRAPHICS

Series:	Volume:	Number:
A	6	7
E	3	4

D.O.T. 902.883, 904.883

CAREER'S MONOGRAPH 256

CHRONICLE BRIEF 42

DESK-TOP CAREER KIT 904, 905

S.R.A. OCCUPATIONAL BRIEF 57

V.I.E.W. Titles: Local Truck Driver; Truck Driver, Long Haul

Other materials from: American Trucking Association, Inc.
1616 P Street, N.W.
Washington, D.C. 20036

VENTURA COUNTY SUPERINTENDENT OF SCHOOLS OFFICE 2/75

School Summary Reports

The School Summary Reports are derived from student responses to the Educational and Career Planning Questionnaire. The computer is programmed to prepare 26 different types of reports compiled from these responses.

The body of each report contains an alphabetical listing of each student's name who responded to that particular question by selecting the indicated response. A statistical summary is printed by the computer in the lower left hand corner of each report. It includes the total number of students who took the questionnaire, the number of students who selected the specified response and a percentage factor.

HIGH SCHOOL QUESTIONNAIRE RESULTS

VENTURA HIGH

PAGE 118

GRADE 10

DATE 07-24-73

56-735-022

VOCATIONAL PLANNING QUESTIONNAIRE REPORT 0211M

MALE STUDENTS SELECTING FORESTER
AS THEIR FIRST OR SECOND CAREER CHOICE

STUDENT NAME	BUS	STUDENT NAME	BUS
FIRST CHOICE			
ABBEY DAVID P	YES (N1.2-)	BOWDEN DOUG P	YES (N2.0-)
CARMOLINI SCOTT M	YES (Y2.2-)	CURTIS JIMMIE DALE	YES (N1.0-)
DEAN JAMES P	YES (N1.2-)	FRANK STEPHEN E	YES (Y1.1-)
GRUELL RON W	YES (N2.2-)	HENDERSON DAVID C	NO (Y1.3-)
LITRATTA KEITH A	NO (N1.1-)	LOWE ROBERT J	YES (N1.3-)
MORNINGSTAR GARY R	YES (Y1.2-)	SLEPT PETE C	NO (N1.1-)
WILSON TED W	NO (N1.4-)		
SECOND CHOICE			
BLINN LARRY L	YES (N1.0-)	CHEVERIE MICHAEL J	YES (N0.3-)
EVANS DENNIS K	YES (N1.2-)	FOND DENNIS J	YES (N1.0-)
FROEBE MONTY D	NO (N2.3-)	GRAHAM STEVE	NO (N1.3-)
KOENIG KURT V	YES (N2.2-)	MILLER ARTHUR C	YES (N0.0-)
MUNOZ RICHARD R	YES (N1.0-)	MURPHY RONALD M	YES (N2.2-)
OLSEN DEVAN B	NO (N2.1-)	RALSTON REED N	NO (N1.4-)
WILLIAMS TIM R	YES (N1.1-)		
TOTAL REPORTED	26		
TOTAL STUDENTS	265		
PERCENTAGE	9.81%		

County Summary Reports

The County Summary Reports are computer printed statistical review of each of the school reports. The title block contains the same basic information as the School Reports. The left hand column of the report identified the ditrict and the name of each school within that district. The next three columns list the number of students who selected the particular question response indicated, the total number of students who took the questionnaire and a percentage factor.

The bottom line of each report indicates the County totals for each column. It is possible to obtain from these reports data pertaining to a particular school or a district and compare these results to the County percentage factors.

VENTURA COUNTY SUMMARY

VENTURA COUNTY

PAGE 171

DATE 07-19-73

VOCATIONAL PLANNING QUESTIONNAIRE REPORT 0211M

GRADE 10

MALE STUDENTS SELECTING FORESTER AS THEIR FIRST CAREER CHOICE

SCHOOL/DISTRICT	TOTAL REPORTED	TOTAL STUDENTS	PERCENTAGE
FILLMORE SR. HIGH	4	81	4.94%
FILLMORE UNIFIED DISTRICT	4	81	4.94%
MOORPARK HIGH	1	33	3.03%
MOORPARK MEM. UNION DIST.	1	33	3.03%
NORDHOFF SR. HIGH	4	118	3.39%
OJAI UNIFIED DISTRICT	4	118	3.39%
ADOLFO CAMARILLO HIGH	11	287	3.83%
HUENEME HIGH	15	294	5.10%
OXNARD HIGH	14	236	5.93%
THOUSAND OAKS HIGH	27	343	7.87%
RIO MESA HIGH	4	160	2.50%
CHANNEL ISLANDS HIGH	7	221	3.17%
NEWBURY PARK HIGH	12	280	4.29%
OXNARD DISTRICT	90	1821	4.94%
SIMI VALLEY HIGH	13	284	4.58%
SIMI VALLEY UNIFIED DIST.	13	284	4.58%
SANTA PAULA HIGH	9	111	8.11%
SANTA PAULA UNION DISTRICT	9	111	8.11%
BUENA HIGH	17	284	5.99%
VENTURA HIGH	13	265	4.91%
VENTURA UNIFIED DISTRICT	30	549	5.46%
ST. BONAVENTURE	2	46	4.35%
SANTA CLARA HIGH	1	74	1.35%
PAROCHIAL DISTRICT	3	120	2.50%
TOTALS OF ABOVE SCHOOLS	154	3117	4.94%

EXAMPLE

We, in the Simi Valley Unified School District, have been involved with the CPI since its inception. The information obtained from students via the CPI is taken and stored in the Ventura County School's Data Processing system. This data is retrievable in a variety of modes depending upon individual school district's needs. The results returned to our district from the CPI were surveyed carefully to determine the degree of student interest in the area of the allied health/science careers. This process will be explained with specific examples related to our goals as well as indication of other reports available to the users of the CPI.

We determined from the school summary report that there were students at the two high schools in our district that had indicated an interest in the areas of medical laboratory worker, medical assistant, licensed vocational nurse, hospital attendant/nurse aides, physical therapist, and x-ray technician.

After completing our survey of, and interviews with, employers we were able to systematize the duties required of people working in a primary or reference laboratory. With the list of the job duties, a list of interest areas and aptitude strengths applicable to someone working in this particular type of occupation was prepared. We contacted the Supervisor of Systems and Programming in the Ventura

Regional Education Data Center and scheduled a meeting to determine the possibility of retrieving students' names based upon the input of their interests and aptitudes. A program has been written to make this selection process possible for any area that utilizes the Career Planning Inventory. We discovered, by the trial and error method, that we had been either too specific or too general in assigning the limitations of the data retrieval program. The result of the overly specific program was a computer printout listing three eligible students. We knew from the District School Summary Report that there was a greater interest so we went back to the Supervisor for a second meeting and decided to be less specific in the areas of the student's occupational choice, screening only in the areas of "interest", aptitudes", and "job characteristics". This profile produced a much longer list of students to be contacted. From these experiences in working with the CPI data, it was observed that student interest and aptitudes often lack correlation with their occupational choices. As an example, a student may have indicated on "Question C" that two of the following types of work which are of most interest to me at this time are "health services" and "scientific" ... on "Question E" that two of my strongest aptitudes or talents are "clerical" and "finger dexterity" ... and on "Question G" I would like a career with the following job characteristics: "competes with other people on the job for recognition and advancement", "sees the physical results of work", "works as part of a team", "works with

people", and has "jobs widely scattered". However, when it comes to selecting an occupation, the student may choose one with widely divergent traits such as game warden, airline stewardess, or bookkeeper.

The Ventura Regional Education Data Center in the Ventura County Superintedent of Schools Office has the capability of using student profiles derived from the CPI to produce a list of prospective students. The staff at the Center is most cooperative in working with school districts who are participating in the Career Planning Inventory. The turnaround time was most expedient and the computer printouts were exactly as we had requested.

We have interviewed the students who were selected through the CPI computer procedure and have found that many of the students were unsure of their choice of a definite occupation but were reasonably certain of their interests in and aptitudes for the types of jobs they would enjoy. At the secondary level, students are often hesitant to make a decision regarding the career they will enter following graduation from high school. Since one objective of the course is to give the students an opportunity to experience and investigate different careers in the allied health/science related occupations, the less specific screening process was sufficient to provide an appropriate list of names of potential students.

We have included an example of the CPI and indicated the profile

of responses requested for data processing retrieval to determine the students to be selected for possible inclusion into our program.

Student Career Planning Data Compared to Projected Labor Demands

A useful booklet which is provided by the Ventura County Superintendent of Schools Office is titled, "The Student Career Planning Data Compared to Projected Labor Demands". It lists occupational training programs within Ventura County and contains forms that compare student interests and program availability to occupational needs. It is a simplified method for matching student career interests with related available occupational programs and the associated labor market demands data. There is a column on the form which cites the occupational outlook for the specific careers. The local occupational outlook was determined by a subjective analysis of program availability/ potential occupational supply, student interest, and local occupational demands and other local/regional influencing factors. The national outlook was obtained from the Occupational Outlook Handbook.

The "program availability" section of this publication lists the existing training programs and their locations within Ventura County. This allows for county-wide articulation to occur and should be beneficial for local vocational planners in considering the development of curricula.

The following example illustrates the profile we submitted to Data Processing to obtain the list of potential students for the Science Career Education program:

EDUCATIONAL AND CAREER PLANNING QUESTIONNAIRE

STUDENT SELECTION SAMPLE

NAME _____ SEX: Male ☐ Female ☐
Last First Initial

ADDRESS _____ PHONE _____
Number Street City Zip Code

SCHOOL _____ GRADE _____ COUNSELOR _____

Please print information as requested at the top of this sheet. The following questions are about your educational and career plans. Each question is important. Your answers will be used to help you understand your educational and career goals and to provide you with information about appropriate careers. Read each question carefully and answer it as best you can. You are to mark only one answer for each question unless the directions tell you to mark more than one answer. To indicate your choice simply circle the number in front of your answer.

A. **The following courses of study are offered in most high schools. My present course of study is:**

1. General Education
2. Business Education
3. Vocational Agriculture
4. Fine Arts
5. Industrial Education
6. Home Economics
7. College Prep. (Math/Science)
8. College Prep. (English/Social Sciences)
9. College Prep. (General Program)
10. Combination of two or more of 1 - 9

B. **How sure am I about my choice of a course of study?**

1. Very sure. It is exactly what I want.
2. Somewhat sure. I think it is what I want.
3. Doubtful. I am not too sure it is what I want.
4. I realize now I am in the wrong course of study.

ANY 2

C. **TWO of the following types of work which are of most interest to me at this time are:**

1. Artistic (creative work involving design, color and materials or the performing arts such as music, drama or dance)
2. Clerical (work involving precision, order and accuracy)
3. Computational (work involving mathematics or numbers)
4. Health Services (work involving health care of people or animals)
5. Literary (work involving reading and writing)
6. Mechanical (work involving machines and tools)
7. Outdoor (work that keeps you outside most of the time in all kinds of weather)
8. Persuasive (work involving sales, advertising, and/or public relations)
9. Scientific (work involving discovery, understanding and problem solving in nature and the physical world)
10. Social Service (work involving helping other people)

VENTURA COUNTY SUPERINTENDENT OF SCHOOLS OFFICE
Department of Occupational Education **** Regional Occupational Program

VCSS No. 3598
Revised December 1973

D. How sure am I that my responses to question "C" really are my strongest interests?

1. Certain. My career interests are very firm.
2. Fairly sure. My career interests are rather clear.
3. A little uncertain. My career interests are fairly clear.
4. Very uncertain. My career interests are not clear at all.

ANY 2

E. TWO of my strongest aptitudes or talents are:

1. General learning (closely related to doing well in school)
2. Verbal (ability to work with and understand written and oral information)
3. Numerical (ability to work well with numbers and mathematics)
4. Spatial (ability to picture something in my mind from a drawing)
5. Form perception (ability to see important details and differences)
6. Clerical (ability to work well with details in numbers or words)
7. Eye-hand coordination (ability to make a movement response accurately and swiftly)
8. Finger dexterity (ability to work with small objects rapidly)
9. Manual dexterity (ability to move my hands easily and skillfully)

F. How sure am I that my responses to question "E" really are my strongest aptitudes?

1. Certain
2. Fairly sure
3. A little uncertain
4. Very uncertain

ANY 5

G. I would like a career with the following job characteristics: (circle FIVE of those you would like)

1. Involves a high level of responsibility -- makes key decisions involving property, finances or human safety and welfare
2. Directs activities of others -- work involves supervisory responsibility
3. Works under close supervision -- job performance and work standards controlled by a supervisor
4. Has repetitious work -- performs the same task on a continuing basis
5. Competes with other people on the job for recognition and advancement
6. Works with details on a continuing basis -- may be numbers, written materials or technical data
7. Sees the physical results of work -- produces a tangible product
8. Has an opportunity for self-expression -- freedom to use one's own ideas
9. Helps people -- assists people in a helping relationship
10. Works independently -- requires initiative, self-discipline and the ability to organize
11. Works as part of a team -- interacts with fellow employees in performing work
12. Requires physical stamina -- involves continued lifting, standing and walking
13. Works overtime or shift work -- works hours other than normal, daytime shifts
14. Works with ideas -- uses intellect to solve problems
15. Works with people -- requires a pleasing personality and ability to get along with others
16. Works with things -- job generally requires manual skills
17. Works at one work setting -- generally confined to work area
18. Has jobs widely scattered -- jobs are located in most areas of the United States
19. Motivates others -- must be able to influence others

H. Based upon facts I have now, my plan for the future is:

1. To graduate from high school and go right to work with no further education.
2. To join the armed forces.
3. To enter an apprenticeship program.
4. To get further training at a trade, technical or business school.
5. To complete a junior college program involving two years of training or less.
6. To start at a junior college then transfer to a four year college.
7. To go right to a four year college or university.
8. To attend more than four years of college.

I. Is there any reason why you may not be able to graduate from high school?

1. Yes 2. No

J. I wish to talk to a counselor about (circle as many as apply):

1. High school education requirements.
2. Post high school technical (community college) and trade school opportunities.
3. Four year college entrance requirements.
4. Scholarships or other financial aids to attend a private school, junior college or four year college.
5. I do not wish to talk to a counselor about any of the above.

K. I estimate my grades since 8th grade to be:

1. Mostly A's
2. Mostly A's and B's
3. Mostly B's
4. Mostly B's and C's
5. Mostly C's
6. Mostly C's and D's
7. Mostly D's

L. Please note your need at this time for help with educational and career planning:

1. I need considerable help in figuring out what I am going to do.
2. I have some things planned but could use additional help.
3. I do not need additional help at this time as plans are pretty clear.

M. Do you have any physical handicaps that limit you in any way?

1. Yes 2. No

N. Some high school students ride a bus to an area vocational school so they can take special courses. Are you willing to attend an area school (no more than 30 miles from your school) if the vocational courses you wish to take are not offered at your school? Please circle your answer.

1. Yes 2. No

O. You probably have some idea of the occupation(s) you would like to enter. Please select your first and second choices (TWO ONLY) from the 126 occupations listed by placing a "1" in front of your first choice and a "2" in front of your second choice. If the occupation(s) in which you are interested are not listed, please pick related occupation(s) or place an "X" in the box marked "other" and write in the occupation(s) you prefer. If you do not have any idea of the occupation you would like to enter, please place an "X" in the box marked "undecided."

BUSINESS AND COMMERCE

_____ 001 Accountant
_____ 003 Advertising Worker
_____ 005 Auto Salesman
_____ 007 Automobile Parts Counterman
_____ 009 Bank Teller
_____ 010 Bookkeeper
_____ 011 Cashier
_____ 013 Clerk Typist
_____ 015 Computer Operator
_____ 017 Hotel/Motel Clerk
_____ 019 Insurance Agent
_____ 021 Keypunch Operator
_____ 023 Manufacturers' Salesman
_____ 025 Personnel Worker
_____ 027 Public Relations Worker
_____ 029 Purchasing Agent
_____ 031 Real Estate Salesperson
_____ 033 Receptionist
_____ 035 Restaurant Manager
_____ 037 Retail Sales Clerk
_____ 039 Secretary/Stenographer
_____ 041 Stockbroker
_____ 043 Telephone Operator

APPLIED AND PERFORMING ARTS

_____ 101 Actor/Actress
_____ 103 Commercial Artist
_____ 104 Dancer
_____ 105 Interior Designer/Decorator
_____ 106 Interpreter/Translator
_____ 107 Journalist/Newspaper Reporter
_____ 109 Lithographer
_____ 111 Model
_____ 113 Musician/Music Teacher
_____ 115 Photographer
_____ 117 Photographic Lab. Technician
_____ 118 Professional Athlete
_____ 119 Radio & Television Announcer
_____ 121 Technical Writer

AGRICULTURE AND CONSERVATION

_____ 201 Animal Keeper
_____ 203 Crop and Fruit Grower
_____ 205 Dairy and Livestock Farmer
_____ 207 Fish and Game Warden
_____ 209 Fisherman
_____ 211 Forester
_____ 213 Forestry Technician
_____ 215 Gardener/Grounds Keeper
_____ 216 Horse Trainer/Breeder
_____ 217 Nurseryman/Landscaper
_____ 219 Poultry Rancher

SKILLED TRADES AND REPAIR

_____ 301 Air Conditioning, Refrigeration and Heating Mechanic
_____ 303 Aircraft Mechanic
_____ 305 Appliance Serviceman
_____ 309 Automobile Body Repairman
_____ 311 Automobile Mechanic
_____ 313 Automobile Painter
_____ 315 Automobile Transmission Repairman
_____ 317 Bricklayer
_____ 319 Business Machine Serviceman
_____ 321 Carpenter
_____ 323 Cement Mason
_____ 325 Electrician
_____ 327 Farm Equipment Mechanic
_____ 329 Heavy Equipment Operator
_____ 331 Industrial Machinery Repairman
_____ 333 Lineman
_____ 337 Machinist
_____ 339 Motorcycle Mechanic
_____ 340 New Car Get Ready Man
_____ 341 Painter/Paperhanger
_____ 343 Plumber
_____ 344 Service Station Attendant
_____ 345 Television and Radio Repairman
_____ 347 Welder

PUBLIC SERVICES

_____ 401 Air Traffic Controller
_____ 403 Airplane Pilot
_____ 405 Airline Stewardess
_____ 407 Beauty Operator
_____ 409 Bus Driver
_____ 411 Clergyman/Religious Worker
_____ 413 Cook/Chef
_____ 415 Counselor
_____ 417 Custodian
_____ 419 Fireman/Fire Fighter
_____ 423 Home Economist
_____ 425 Lawyer
_____ 427 Librarian
_____ 428 Military Service
_____ 429 Nursery School Teacher
_____ 431 Police Officer
_____ 433 Probation Officer/Parole Agent
_____ 435 Psychologist
_____ 437 Recreation Worker
_____ 439 Social Worker
_____ 441 Teacher
_____ 443 Truck Driver
_____ 445 Waiter/Waitress

ENGINEERING, SCIENTIFIC AND TECHNICAL FIELDS

_____ 501 Architect
_____ 503 Biologist
_____ 505 Chemical Engineer
_____ 507 Chemist
_____ 509 Civil Engineer
_____ 511 Computer Programmer
_____ 513 Draftsman
_____ 515 Electrical Engineer
_____ 517 Engineering/Science Technician
_____ 519 Geologist
_____ 521 Mathematician
_____ 523 Mechanical Engineer
_____ 525 Oceanographer/Marine Biologist
_____ 527 Surveyor
_____ 529 Systems Analyst

HEALTH SERVICES

_____ 601 Dental Assistant
_____ 603 Dental Hygienist
_____ 605 Dentist
_____ 607 Hospital Administrator
_____ 609 Hospital Attendant/Nurse Aide
_____ 611 Licensed Vocational Nurse
_____ 613 Medical Assistant
_____ 615 Medical Laboratory Worker
_____ 617 Occupational Therapist
_____ 619 Optometrist
_____ 621 Pharmacist
_____ 623 Physical Therapist
_____ 625 Physician/Doctor
_____ 627 Registered Nurse
_____ 629 Veterinarian
_____ 631 X-ray Technician

☐ 998 Other _____
_____
_____

☐ 999 Undecided

THE ADVISORY COMMITTEE

Effective coordination and articulation of occupational education programs within and between school systems is impeded because of strong differences of opinion regarding the objectives of the programs among the responsible educators. What is needed is a comprehensive system of occupational education and training for both the youth and adults in a community who need and desire such education. School administrators acknowledge the need for such a system of occupational education rather than groups of uncoordinated programs. It appears reasonable and logical in developing such a system to have the benefit of the advice and counsel of a general advisory committee composed of industry executives from all segments of the community.

Advisory committees play a vital role in the success of vocational and occupational programs. It is important that as technology demands increase and industrial patterns change, the instructional programs reflect current practice. These advances require the joint efforts of school and community to remain abreast of changing needs.

In order for training programs to respond to the needs of industry, a situation conducive to a constant exchange of information must be maintained. Interested people from industry are needed to acquaint the schools with trends, technical advances, and the varied requirements for specific occupational skills and training. An advisory committee sensitive to the daily needs of local industry can

provide the effective interchange of information that is vital to both the school and industry. The advisory committee can make an effective contribution if it has been given a clearly defined function that is unanimously considered relevant by the members of that committee. The committee must be "wanted" by the school and the potential value of its contributions must be recognized by the school administration. The superintendent and his staff must be willing to give the necessary time, energy, and support to make it successful. It has been said that the achievements of advisory committees are proportionate to the demands made on them by the school district.

The function of an advisory committee is, as the name signifies, to give advice. An advisory committee has no administrative or legislative authority; this is the responsibility of the board of education.

There are three essential criteria to keep in mind when selecting and inviting individuals to become members of an advisory committee. First, the members must have had successful first-hand experience in the special area being served. They should be people who have the respect and confidence of their associates. Second, since an advisory committee should meet as often as is necessary, members must be able to maintain close contact with vocational activities of the school district. Each member should be willing to devote time to the committee and in some instances give additional time for subcommittee work. Third, each member should exhibit a strong sense of responsibility in civic-mindedness.

ACCOUNTABILITY AND FOLLOW-UP

Judgment about the effectiveness of educational preparation for work can be made only after the results are observable. The success of graduates -- the number who acquire and keep jobs in the occupation for which they are trained, the wages they earn, and the extent to which they need further education and training -- are the types of data that influence this judgment. On the basis of this evidence, a school can endorse, modify, or cancel the educational program being evaluated. The feedback obtained from and about graduates is invaluable to the school in discharging its instructional obligations.

The school's advisory committees are keenly interested in information derived from follow-up studies. The findings can, for example, be used by the school to justify soliciting their counsel on certain phases of the instruction or to seek their endorsement of a new course offering. The committees will be able to use follow-up information to endorse or recommend alterations in placement practices.

A critical public is demanding that educators and educational institutions justify their expenditures more diligently than ever before. One measure of accountability applied to vocational education is how well its graduates fare in the world of work. The public, however, is holding schools accountable for expending taxpayers' funds in a manner that will ensure the maximum benefits to society. Thus, the student's

total adjustment to society is part of the school's accountability. Follow-up studies conducted for the purposes of determining how well their graduates adjust to work and to adult life can provide schools with a useful accountability tool.

Obtaining valid data is the first step in a process that enables vocational educators to incorporate knowledge derived from past experiences into plans for the future. It should be an integral part of a continuous process whereby the curriculum which may include other peripheral vocational studies undergo scrutiny and change.

The following pages illustrate a graduate follow-up questionnaire. This particular assessment tool is commonly known as "TRACE" and was produced by the Santa Barbara County Schools in cooperation with the Vocational Education Section of the California State Department of Education.

GRADUATE FOLLOW-UP QUESTIONNAIRE

IF THE INFORMATION ON THE LABEL AT THE LEFT IS INCORRECT, PLEASE ENTER THE CORRECT INFORMATION AT THE RIGHT

NAME _____
last first middle

PERMANENT ADDRESS _____
no. street city

_____ PHONE _____
state zip area code/number

PLEASE FOLLOW INSTRUCTIONS CAREFULLY AND ANSWER ALL QUESTIONS THAT APPLY TO YOU.

1. What are you doing at the present time? (Check each item that describes your present activity.)

- ☐ In school, full-time
- ☐ In school, part-time
- ☐ In armed forces
- ☐ Housewife
- ☐ Working, full-time
- ☐ Working, part-time
- ☐ Not working, looking for a job
- ☐ Not working, not looking for a job
- ☐ Other (please describe) _____

ANSWER THE QUESTIONS IN THIS BOX IF YOU ARE ATTENDING SCHOOL FULL-TIME OR PART-TIME.

2. What type of school are you attending?

- ☐ Four-year college or university
- ☐ Technical school (type) _____
- ☐ Trade school (type) _____
- ☐ Private business school
- ☐ Other (DESCRIBE) _____
- ☐ Junior college (also check one below)
  - ☐ Plan transfer to 4-year college
  - ☐ Two-year AA program only
  - ☐ Certificate program (DESCRIBE) _____
  - ☐ Other (DESCRIBE) _____

3. What is the name of the school? _____

4. What is your major subject? _____ ☐ None

ANSWER THE QUESTIONS IN THIS BOX IF YOU ARE WORKING FULL-TIME OR PART-TIME OR IF YOU ARE LOOKING FOR A JOB.

5. Which of the following is your present job situation?

- ☐ Unemployed, but looking for a job
- ☐ In an apprenticeship program
- ☐ Receiving on-the-job training
- ☐ In a job I am fully qualified for

6. Which single statement best describes your present job or, if unemployed, the job you are looking for?

- ☐ In a field for which I received specific high school training
- ☐ In a field related to my high school training
- ☐ In a field unrelated to my high school training

ANSWER THE QUESTIONS IN THIS BOX IF YOU ARE WORKING FULL-TIME OR PART-TIME.

7. What type of business or industry are you employed in? _____

8. What is your job title? _____

9. How far from your high school is your place of employment?

- ☐ 0-10 miles
- ☐ 11-25 miles
- ☐ 26-50 miles
- ☐ 51-100 miles
- ☐ more than 100 miles

10. Who helped you get your job?

- ☐ Parents, relatives, or friends
- ☐ High school vocational counselor
- ☐ Got it on my own
- ☐ Private employment agency
- ☐ State or public employment agency
- ☐ Other (DESCRIBE) _____

11. Make an "X" in the box that best describes your agreement or disagreement with the statement for your present job.

STRONGLY DISAGREE	DISAGREE	NOT SURE/ UNDECIDED	AGREE	STRONGLY AGREE	
☐	☐	☐	☐	☐	The work is interesting to me.
☐	☐	☐	☐	☐	My chances for advancement are good.
☐	☐	☐	☐	☐	The pay is good, considering my training and experience.
☐	☐	☐	☐	☐	I am satisfied with this job, at this stage in my career.
☐	☐	☐	☐	☐	The job is related to my ultimate occupational objective.

PLEASE ANSWER ALL OF THE FOLLOWING QUESTIONS

12. Read the following list of high school subject areas. Then make an "X" in each set of columns according to the instruction at the top of the sets.

[NUMBER]	SUBJECT AREAS	Did you take any courses in this area? no	yes	If "yes," check the degree of usefulness of courses you have taken to your present activity: not useful	somewhat useful	very useful	Check here if you wish you had taken any OR more courses in this area
[1]	Art, Music	☐	☐	☐	☐	☐	☐
[2]	Drama, Speech	☐	☐	☐	☐	☐	☐
[3]	English, Literature, Writing	☐	☐	☐	☐	☐	☐
[4]	Foreign Language	☐	☐	☐	☐	☐	☐
[5]	Mathematics	☐	☐	☐	☐	☐	☐
[6]	Science	☐	☐	☐	☐	☐	☐
[7]	Social Studies	☐	☐	☐	☐	☐	☐
[8]	Agricul., Horticul., Forestry	☐	☐	☐	☐	☐	☐
[9]	Business and Office Practices	☐	☐	☐	☐	☐	☐
[10]	Distrib. Ed., Merch'dsing, Sales	☐	☐	☐	☐	☐	☐
[11]	Health, Medical, Hospital	☐	☐	☐	☐	☐	☐
[12]	Home Ec., Consumer Ed.	☐	☐	☐	☐	☐	☐
[13]	Indust., Tech., and Trade Skills	☐	☐	☐	☐	☐	☐
[14]	Work Experience Program	☐	☐	☐	☐	☐	☐
[15]	Physical Education	☐	☐	☐	☐	☐	☐

13. In your present activity (school, work etc.), what *specific* high school *courses* (for example, typing, biology, drafting, etc.) do you find to be

Most useful (NAME) _____ [ ]
Second most useful (NAME) _____ [ ]
Third most useful (NAME) _____ [ ]

{Write the numbers (used in Question 12) of the subject areas in which the specific courses were given.}

14. Are there any *specific courses* or *work experience programs* that you now either wish you had taken or wish had been offered in high school?

☐ Yes (please describe) _____
☐ No

15. What educational program would you take now if you had it to do over again?

☐ Same program I took
☐ A different program (also check one below)

☐ College preparatory
☐ Vocational program (which one?) _____

☐ Other (describe) _____

16. What was your occupational choice when you were in high school? _____

_____

☐ Had not made a choice.

17. What is your occupational choice now? _____

☐ Have not made a choice.

18. Who helped you *most* in planning for the future when you were in high school? Check one.

☐ Parents and relatives
☐ On-campus friends
☐ Off-campus friends
☐ School counselors
☐ Teachers
☐ Work experience advisor

☐ Others (Please describe) _____

19. Were you a member of any high school teams, clubs, or organizations?
☐ Yes ☐ No If yes, for each group you were a member of, indicate whether or not you now feel it was worth your time.

Yes	No		Yes	No	
☐	☐	Student government	☐	☐	Vocational Clubs
☐	☐	Athletic teams	☐	☐	Music, Acting groups
☐	☐	Scholastic Clubs	☐	☐	Cheerleader, Drill team
☐	☐	Publications	☐	☐	Other (DESCRIBE) _____

20. In your opinion, how helpful was high school to you in learning or improving the skills used in the following everyday-living activities?

Not Helpful	Somewhat Helpful	Very Helpful	
☐	☐	☐	Reading for instruction and pleasure
☐	☐	☐	Writing letters, reports, or notes accurately
☐	☐	☐	Working numerical problems and managing finances
☐	☐	☐	Speaking before groups of people
☐	☐	☐	Preparing for marriage and family life
☐	☐	☐	Getting and maintaining a job
☐	☐	☐	Using proper spoken English
☐	☐	☐	Thinking out problems, issues, and forming opinions

21. Make an "X" in the box that best describes your agreement or disagreement with the following statements.

STRONGLY DISAGREE	DISAGREE	NOT SURE/ UNDECIDED	AGREE	STRONGLY AGREE	
☐	☐	☐	☐	☐	My counselor gave me good information in planning my high school program.
☐	☐	☐	☐	☐	My counselor was helpful in planning my activity after graduation.
☐	☐	☐	☐	☐	Most of my teachers made their courses interesting and enjoyable.
☐	☐	☐	☐	☐	Most of my teachers tried to meet my specific educational needs.
☐	☐	☐	☐	☐	Most of my teachers related their subjects to the needs of today.
☐	☐	☐	☐	☐	Most of my teachers were not prejudiced toward minority group students.
☐	☐	☐	☐	☐	I feel that high school was a pleasant and rewarding experience.

22 Indicate in which schools you have *completed* a program of study or from which you have received a degree since leaving high school. (CHECK AS MANY SCHOOLS AS APPLY).

- ☐ No schools
- ☐ Four-year college or university
- ☐ Technical school (type) _____
- ☐ Trade school (type) _____
- ☐ Private Business School
- ☐ Other (DESCRIBE) _____
- ☐ Junior college (also check one below)
  - ☐ Two-year AA program only
  - ☐ Certificate program (type) _____
  - ☐ Other (DESCRIBE) _____

Thank you for completing the questionnaire

Feel free to write comments in the empty space above

ARTICULATION

Articulation is not simply a coordinating meeting of each district so that one knows what the other offers; it is an organized plan whereby the educational objectives at every program level are systematically organized into an upward mobility module. It permits spin-offs at each level, eliminates repetition, and strengthens further development.

In addition to providing an upward mobility the articulation allows an opportunity to begin breaking down the interdepartmental barriers so common to secondary education. No valid program can be realized within the confines of a single department. Vocational education must promote the interdisciplinary approach if it is to develop a viable program.

To have a successful vocational program, articulation must be one of the earliest, if not the first, steps. It is essential to be convinced of the value and rationale for developing an organized articulative program with accompanying benefits to the students, the district, and most importantly, vocational education.

While it is imperative that each vocational program independently prepare graduates for entry level job employment at the completion of high school training, an articulated program of vocational education will enable students to complete their advanced training in a reduced amount of time, and/or prepare them for a more advanced position by

the end of a completed junior college or adult education program.

An articulated program benefits a school district by clarifying educational opportunities for parents, students, counselors, and the community in understanding the advantages of promoting a vocational education training program. It affords the opportunity to provide an expanded curriculum and/or a more advanced program addressed to student needs in a particular vocational area. Articulation can save expenses of equipment, facilities and maintenance in vocational programs.

A well articulated program should give the community a more positive and supportive outlook at various vocational programs; they will be more confident that the best programs possible are being operated to meet each individual need.

Articulation requires considerable planning, in-service meetings, joint advisory committee meetings, joint curriculum development, etc., all of which will contribute to a greater need for the vocational leaders, both at the community college, adult education, and the secondary school levels to take an active part. When administrators are better informed and cooperatively working together in the best interests of vocational education they should be more able to meet the needs of their student population and the community they serve.

GLOSSARY OF TERMS

BLS NATIONAL INDUSTRY/OCCUPATIONAL (I-O) MATRIX - a means of displaying data designed and developed by the Bureau of Labor Statistics (BLS) combining census data, employer surveys, and extrapolation techniques to "fill-in" the industry-occupation employment cells. (Refer to Tomorrow's Manpower Needs, available from the U.S. Department of Labor, Bureau of Labor Statistics.)

CLASSIFIED INDEX OF INDUSTRIES AND OCCUPATIONS - defines the industrial and occupational classification systems adopted for the 1970 Census of Population, presents approximately 19,000 industry and 23,000 occupational titles.

DOT CODE - Dictionary of Occupational Titles - an occupational classification system first published in 1939 and revised and updated over the years. It makes available descriptive information concerning most jobs in the U.S. economy and provides a numerical classification structure by means of which occupations are arranged according to their interrelationships. The standardization of job titles and accompanying definitions of job duties provide a unique tool for the many users of occupational information.

EDD - State of California, Employment Development Department (formerly known as HRD).

EMPLOYER VALIDATION - a technique used to obtain occupational information and estimates from a sample of area employers to be used in validating cells of the matrix and to assist in making localized projections of occupational and industrial trends.

ENTRY-LEVEL JOBS - those positions for which employers will accept and hire workers with little or no previous experience in the occupation and with relatively minimum training or education for the specific job.

EXTRAPOLATION TECHNIQUE - projection techniques used to extend known economic time series data into a future time period.

LABOR MARKET AREA - an identifiable area with a major industrialized city or cities, meeting a certain size criterion, in which resident workers move to and from jobs.

MMIS - Manpower Management Information System - a comprehensive information system, supported by JOPTF, designed to develop, compile, evaluate, and deliver a large volume of valid and pertinent information relating to the interactions of the labor market to those individuals and groups directly or otherwise involved in the use and application of such information.

PROJECTION - a quantitative economic trend decision based on analysis and statistical calculations using economic data. The word is commonly used to distinguish the conditional prediction from the unconditional prediction.

SMSA - Standard Metropolitan Statistical Area - a concept first developed by the U. S. Bureau of the Budget in 1943. The primary objective was to have all reporting federal agencies utilize the same geographic boundaries in publishing statistical data useful for analyzing labor market problems. The criteria used for defining Standard Metropolitan Statistical Areas (SMSA) are essentially those used in defining major labor market areas. As of July 1, 1970, there were 233 Standard Metropolitan Statistical Areas (SMSA) in the United States. The 16 in California coincide with the 16 major labor areas in the state.

REFERENCES

1. Employment Development Department, Southern California Employment Data and Research Division. Ventura County Manpower 1972-75 (November 1973), California Manpower 1972-75 (January 1974).

2. Executive Office of the President - Office of Management and Budget, Standard Industrial Classification Manual: 1972, U.S. Government Printing Office, Washington, D.C. 20402.

3. U.S. Bureau of the Census, Alphabetical Index of Industries and Occupations, Washington: Government Printing Office, June 1971.

4. U.S. Bureau of the Census, Classified Index of Industries and Occupations, Washington: Government Printing Office, September 1971.

5. U.S. Bureau of Employment Security, Dictionary of Occupational Titles: 1965, Definition of Titles, Volume I, Occupational Classification, Volume II and Supplement 2, Third Edition, Washington: Government Printing Office, 1965.

6. Burt, Samuel M., Industry and Vocational-Technical Education, McGraw-Hill, Inc. 1967.

7. Rose, Homer C., The Development and Supervision of Training Programs, American Technical Society, 1961, 1964.

8. Standard Industrial Classification Manual 1972, Executive Office of the President, Office of Management and Budget.

9. Young, Robert C., Clive, William V., Benton, E. Miles, Vocational Education Planning: Manpower, Priorities, and Dollars, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, 1972.

10. Selected Characteristics of Occupations - A Supplement to the Dictionary of Occupational Titles, Third Edition, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, 1966.

11. Handbook for Analyzing Jobs - 1972, Superintendent of Documents U.S. Government Printing Office, Washington, D.C. 20402.

12. Standard Terminology for Curriculum and Instruction in Local and State School Systems, State Educational Records and Reports Series: Handbook VI, Superintendent of Documents, U.S. Government Printing Office, Washington, D.D. 20402, 1970.

13. Dictionary of Occupational Titles, Volumes I and II, Third Edition, U.S. Department of Labor, Superintendent of Documents, U.S. Government Printing Office, Washington D.C., 20402, 1965.

CE 009 672

ACCESSION NUMBER: VT103586

TITLE: A MODEL FOR THE IMPLEMENTATION OF A BILINGUAL VOCATIONAL EDUCATION TRAINING PROGRAM.

DESCRIPTOR: *ADULT VOCATIONAL EDUCATION; *BILINGUAL EDUCATION; ENGLISH (SECOND LANGUAGE); *SPANISH SPEAKING; MEXICAN AMERICANS; ECONOMICALLY DISADVANTAGED; EDUCATIONALLY DISADVANTAGED; *SKILL CENTERS; MODELS; CONTINUING EDUCATION CENTERS; *VOCATIONAL TRAINING CENTERS; COMMUNITY COLLEGES; POST SECONDARY EDUCATION; SECONDARY EDUCATION

IDENTIFIER: EL PASO COUNTY; TEXAS

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 85P.; PAGES 87 THROUGH 103 CONTAINING INFORMATION ABOUT PROGRAM PARTICIPANTS WERE REMOVED. THEY ARE NOT INCLUDED IN THE PAGINATION.

ABSTRACT: TO SERVE THE LOW-INCOME, LOW-EDUCATION POPULATION OF EL PASO CITY AND COUNTY, TEXAS, MORE THAN HALF OF WHOM ARE PRIMARILY SPANISH-SPEAKING MEXICAN-AMERICANS, THE EL PASO COMMUNITY COLLEGE INITIATED PROGRAMS FOR NON-TRADITIONAL STUDENTS IN BILINGUAL OCCUPATIONAL SKILLS TRAINING AND IN BILINGUAL LANGUAGE DEVELOPMENT. A MODEL FOR BILINGUAL VOCATIONAL TRAINING WAS DEVELOPED FOR USE BY OTHER EDUCATIONAL INSTITUTIONS. IN IMPLEMENTING THIS MODEL THE BILINGUAL SKILLS CENTER OF THE COLLEGE CONDUCTED CLASSES IN INDUSTRIAL SEWING MACHINE REPAIR, RADIO/TELEVISION REPAIR, OPTICAL LENS GRINDING, INDUSTRIAL SEWING MACHINE OPERATION, AND THE BUILDING TRADES. THE FIRST THREE PROGRAMS HAVE BEEN APPROVED FOR COLLEGE CREDITS AND THE SECOND TWO FOR CONTINUING EDUCATION UNITS. IN ADDITION, THE CENTER PROVIDED VOCATIONAL TRAINING FOR DISADVANTAGED ADULTS IN AUTO BODY REPAIR, AUTO SERVICE AND TUNEUP, CASHIER/CHECKER, OFFICE PROCEDURES, TYPING, NURSE'S AIDE AND ORDERLY, AND PREEMPLOYMENT PREPARATION. INCLUDED IN THE DOCUMENT ARE AN INFORMATIONAL BROCHURE, A TEST FOR IDENTIFYING PERSONS OF LIMITED ENGLISH-SPEAKING ABILITY, AN EVALUATION OF THE SKILLS CENTER, AND AN INSTRUCTIONAL MODEL AND STUDENT RATING SCALE. (MF)

INSTITUTION NAME: EL PASO COMMUNITY COLL., TEX. BILINGUAL SKILLS CENTER.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT103586

El Paso Community College

BEST COPY AVAILABLE

A MODEL FOR THE IMPLEMENTATION

OF A

BILINGUAL VOCATIONAL EDUCATION TRAINING

FUNDED BY
PART J

UNITED STATES OFFICE OF EDUCATION
DEPARTMENT OF HEALTH EDUCATION AND WELFARE
WASHINGTON, D.C.

OCT 20 1978

OPERATED BY

EL PASO COMMUNITY COLLEGE
BILINGUAL SKILLS CENTER
1116 E. Yandell
El Paso, Texas 79902
915/532-3685

VT 103 586

2

EL PASO COMMUNITY COLLEGE
BILINGUAL SKILLS CENTER
1976 - 1977

BOARD OF TRUSTEES

Joe K. Foster, Chairman

Dr. E. A. Aguilar
Ted Karam
Eleanor Goodman
T. A. Prendergast
Jeanene Smith
Arturo Lightbourn

ADMINISTRATION

Mr. Ray Salazar (Acting President)
Mr. Joe M. Hendrix, Dean of Instruction
Dr. Beryl McKinnerney, Associate Dean of Instruction (Logan Height Campus)

BILINGUAL SKILLS CENTER STAFF

Ruben C. Ochoa, Director
Edgar A. Delgado, Counselor
Rufino Rodriguez, Instructor Radio-TV Repair
Versie Herring, Instructor Sewing Machine Repair
Bertha Gauna, Instructor Sewing Machine Operator
Margie Bailey, Instructor Cash Register Management
Rosalie Gonzalez Martin, Instructor Business & Office Procedures
Dolores Samaniego, Administrative Secretary
Elvira Luna, Admission Clerk
Gloria Hermosillo, Peer Tutor
Sofia Ramirez, Peer Tutor

TABLE OF CONTENTS

I. INTRODUCTION - Background for Requesting a Part J Project

II. OBJECTIVES

III. ORGANIZATIONAL REPORT

IV. FINAL REPORT - Part J Project: Year one, 13 Oct. 1975 - 30 June 1976

V. BROCHURE: El Paso Community College's Bilingual Vocational Education Skills Center

VI. A GUIDE FOR TRAINEES

VII. APPENDIX

A. Test for Determing Persons of "Limited English Speaking Ability"

B. Student Flow and Instructional Model

INTRODUCTION

PART IV

PROGRAM NARRATIVE

1. Need for This Assistance

National and State Perspectives

Historically, Southwestern public educational instiutions have failed to response to culturally different students. Schools persist in judging all students by conventional standards while ignoring real differences and deprivations. Typically, non-traditional students enter shcool at a disadvantage and just as typically leave in much the same fashion. Current statistical date indicate that of any single ethnic group (with the exception of Native Americans), the Spanish-speaking group has the lowest educational level, the highest dropout rate and the lowest proportionate percentage enrolled in institutions of higher education (1). Reluctance on the part of the Spanish speaking to abandon their cultural and linguistic heritage and inability of others to achieve an understanding of their culture and language accounts, in part, for less than adequate participation by the Spanish speaking in programs available to serve them (1). In Texas, by the eighth grade neraly three-fourths of the Mexican Americans are reading below their grade level. By the 12th grade, almost half of those who started first grade (47 percent) have dropped out. Blacks have fared only slightly better (2). The Coleman, Newman, and Jenecks Reports dramatically illustrate on a national scope the failure of traditional educational approaches to successfully reach disfranchised minorities.

El Paso County Perspective

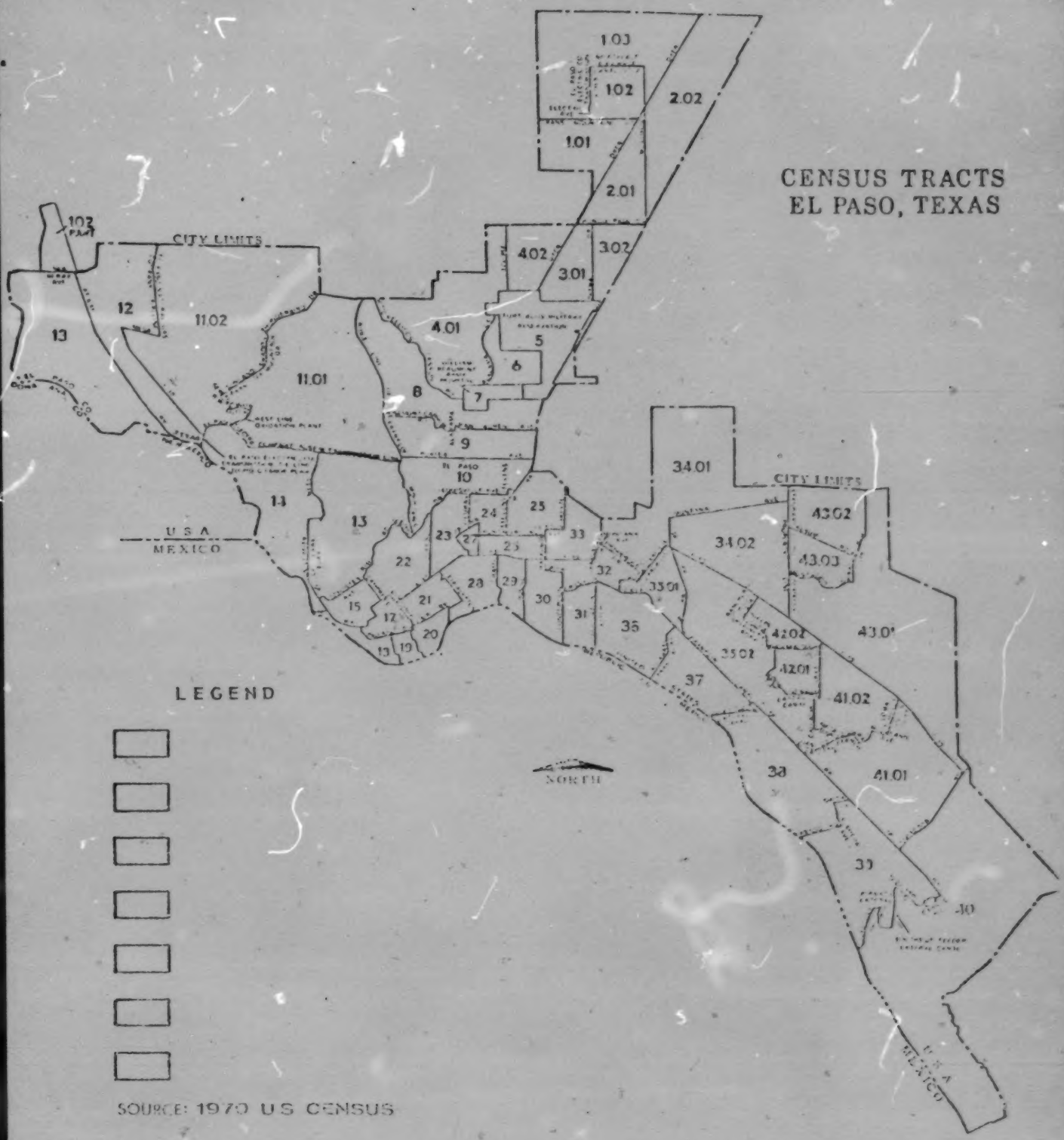
El Paso County with a population of 400,971 (2.8 percent Black and 56.9 percent Spanish surnamed or whose primary language is Spanish) is the largest metropolitan area located on the United States-Mexico border (4). Like other border communities, it has one of the highest incidences of poverty and lowest educational attainment rates in the United States. More than 10,000 Mexican-American families live below what is considered poverty level by federal government definition. The city of El Paso, with over 330,000 inhabitants, was recently designated as the second "poorest" major city in the United States with 30.3 percent of the city's population classified as "poor" by OEO standards. Over 46,000 (54.8 percent) of Mexican Americans 25 years of age or over have completed eight or less years of school (4).

Economic and Employment Situation of Mexican Americans in El Paso

The average annual income of the Mexican American family in the city of El Paso is under $5,000 (US Census Tract). Furthermore, a survey conducted by the Texas Employment Commission showed that of the 7,400 unemployed persons in the area in December, 1973, 75 percent were Mexican Americans. Of those employed, Mexican Americans have occupied the less preferred positions that are either dead end or low waged.

More specific data exists in the form of poverty indicators for the metropolitan statistical tract of El Paso. These selected indicators show that of the total number of individuals below poverty level, fully 78 percent are Mexican American.

CENSUS TRACTS
EL PASO, TEXAS



DEPARTMENT OF PLANNING AND RESEARCH
JANUARY, 1972

Educational Status

Among the many needs the El Paso Community College must meet is that of continuing or adult education. This is brought very forcibly by the data listed in the U.S. Census of 1970 as shown in Table 1.

The data are for males and females and the total for both who are 25 years and over in El Paso County in 1970. Note that a higher percentage of the females than males is in each category of completing no schooling on through high school, and then the males show up as having a higher percentage than females which completed 1-3 years and 4 years or more of college.

There was 4.93 percent (8,047) of the total number (163,078) of males and females who had completed no schooling. There were 56,683, or 34.77 percent had completed none to 8 grades of schooling. Of these 12,338 had completed the 8th grade.

A total of 68,897, or 42.24 percent stated they had had 1 to 4 years of high school, of which 45,667 or 28.00 percent had completed high school. There were 37,498, or 22.99 percent who had some college education. Of this number almost half, 18,590, or 11.40 percent had 4 or more years of college.

One can see the large number of adults who are 25 years or over who need further training. In fact, the figures in Table 1 show that 79,913 or 49.01 percent have less than a four year high school education. As shown in Table 1 another 12,337 have only an eighth grade education.

Table 1

The level of education of males and females and total of both who are 25 years and over in El Paso County, Texas.

Amount of Schooling	Males	Per Cent	Females	Per Cent	Total	Per Cent
No School Years Completed	3,316	4.36	4,731	5.44	8,047	4.93
Elementary:						
1-4 years	6,442	8.46	8,734	10.04	15,176	9.30
5-7 years	8,739	11.48	12,283	14.24	21,122	12.95
8 years	5,438	7.14	6,900	7.94	12,338	7.59
				Sub-total	(56,683)	(34.77)
High School:						
1-3 years	10,326	13.56	12,904	14.84	23,230	14.24
4 years	20,604	27.06	25,063	28.82	45,667	28.00
				Sub-total	(68,897)	(42.24)
College:						
1-3 years	10,176	13.37	8,732	10.04	18,908	11.59
4 years or more	11,088	14.57	7,502	8.64	18,590	11.40
				Sub-total	(37,498)	(22.99)
Total	76,129	100.00	86,949	100.00	163,078	100.00
Median School Years Completed	12.2		11.5		11.9	
Percent High School Graduates	55.0		47.6		51.0	

(U.S. Census)

Bilingual-Bicultural Goals of El Paso Community College

Perhaps an informative way to describe bilingual-bicultural education is to define its intended outcomes. Accordingly, the goals of bilingual-bicultural education at El Paso Community College are as follows:

1. To develop in each student the ability to maximize his potential as an individual, as a learner, and as a citizen in a multilingual, multicultural society.
2. To enrich and deepen mutual understanding for all citizens by building upon the rich multicultural foundations of our society. The learners' unique environment and experiences are the cornerstones of these foundations.
3. To promote cultural acceptance, national pride, and more world understanding.
4. To offer a curriculum that meets the diverse needs of students with different language and cultural orientations in order to better permit them to:
   a. preserve and strengthen their self-image and sense of dignity through appropriate and meaningful instructional programs.
   b. utilize their first language as a medium of instruction.
   c. develop pride in self, college and community.
   d. learn to interact in multilingual-multicultural social settings.
   e. develop communications skills to level of proficiency in order for the individual not only to survive, but progress socially and economically in either culture.

To summarize, the goals of bilingual-bicultural education include the integral bicultural context, full acceptance of the Spanish language as a vital linguistic medium, the use of both languages (the native and English) as a means toward increasing efficiency and improving attitudes in training bilingual-bicultural individuals and English-as-a-second-language as a vital component.

Institutional Committment

El Paso Community College opened its doors to 901 students in the Fall Semester, 1971. Enrollment has grown in three years to over 9,200 students in the Spring Semester 1974-75. A unique feature of the college is that the ethnic composition of its student body is truly representative of the ethnic composition of its community. Enrollment for the Spring Semester 1974-75 is 58% Mexican American, 34% Caucasian, 4% Black, 1% Native American, 3% other. Furthermore, the college. in its fourth year of operation, is enrolling more than 1.5 percent of the population within its district. This percentage compares favorably with some of the "better" urban community colleges in Texas, thus partially indicating the college's effectiveness in moving quickly to serve a commendable proportion of its community population.

In addition to extensive programs in technical-vocational education, general education, transfer education, and continuing education and community services; the college has initiated programs specifically aimed to serve non-traditional students. Working in cooperative with organizations such as NYC, Educational Talent Search, Operation SER, Texas Rehabilitation Commission, Upward Bound, Trinity OIC Coalition, Father Raba Clinic, Project Bravo, A.L.I.V.I.A.N.E., local health organizations, the El Paso Public Schools, the University of Texas at El Paso, and several veterans organizations, the college

provides educational programs of two years or less which are desperately needed within the community. Utilizing the "college without walls concept" El Paso Community College offers classes in high schools, community centers, housing projects, technical-vocational schools, and a main campus. In fact, the college had no campus--its first year of operation. Even today, more than 40 percent of the students attend classes during the evening in the nine teaching centers located throughout El Paso.

Within a relatively short period of time and with scarce resources El Paso Community College has implemented the following program for non-traditional students: (1) A veterans assistance program to recruit and counsel educationally deprived veterans; (2) A nurse retention program to supplemnt instruction in the college's Associate Degree Nursing program: (3) A Special Services Program to provide "peer" tutors and counselors for low-income, non-traditional students; (4) A Right to Read Program to provide developmental reading; (5) A Moody Foundation Program to establish communications and mathematics programmed individualized instructional laboratories; (6) Headstart supplementary teacher training courses; (7) An Upward Bound Educational Talent Search Program for Vietnam Veterans; (8) and an Allied Health recruitment and retention program to recruit low-income and minority students into allied health career fields and to give them entry-level skills and confidence necessary for completing their intended programs of study; (9) Ft. Bliss, an army base of approximately 25,000 personnel, is located in El Paso. The College has quickly moved to serve military men by becoming a Service Men's Opportunity College and this move will allow the college to more adequately serve other adult non-military residents.

OBJECTIVES

The objectives for the Bilingual Skills Center vocational training program includes:

a) to identify and recruit individuals of limited English speaking abilities who are in need of vocational training to enter into gainful employment

b) to provide career counseling to individuals to facilitate realistic vocational choices based on apptitude tests results and assessment of the individual's needs

c) to provide English as a Second Lanugage training for target individuals prior to their entry into vocational training

d) to provide General Education Development for target individuals lacking high school education

e) to provide instruction in consumer education, jobs or pre-employment preparation, and citizen's awareness for participation in local, state, and national government as an informed constituent

f) to provide bilingual training programs in occupations having a shortage of skilled workers

g) to provide placement conseling for target individuals completing the bilingual vocational training programs

h) to implement the model for bilingual vocational education which was developed during the first year of the program

i) to provide in addition to ESL/GED those basic communication and computation skills that are job related.

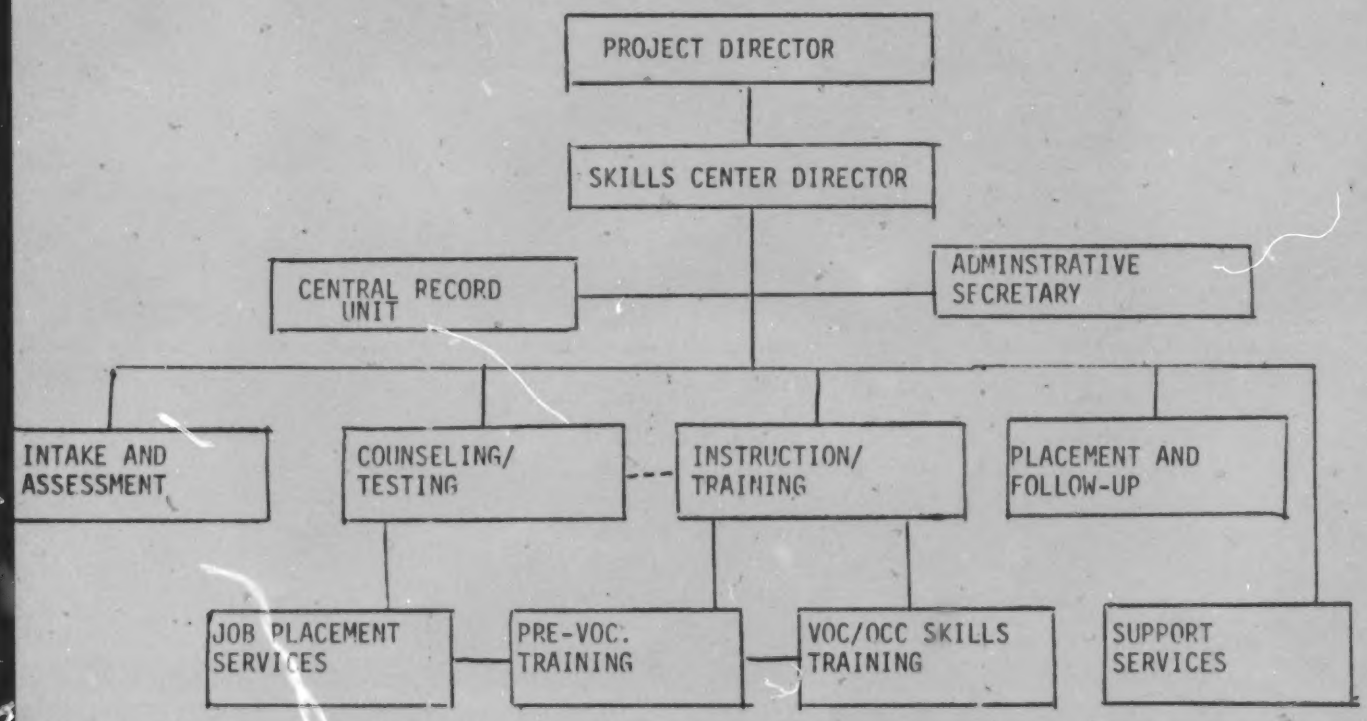
The objectives stated above have been met with a relative degree of success during the first year of operation. Only objective (h) is being consolidated into a formal format of guidelines for providing a model for bilingual vocational training to be used or adapted for use by educational institutions involved in or anticipating involvement in providing bilingual vocational training.

ORGANIZATIONAL CHART

ORGANIZATIONAL CHART
SKILLS CENTER
1976 - 1977

COMPONENTS

1. Administration
2. Intake and Assessment
3. Counseling and Testing
4. Instructional/Training
5. Placement and Follow-up
6. Support Services



FINAL REPORT

1975 - 1976

18

FORM APPROVED, O.M.B. NO. 51-R1052

OUTLINE FOR PROGRAM PERFORMANCE REPORTS
VOCATIONAL AND EDUCATION PROFESSIONAL DEVELOPMENT ACT (EPDA) PROGRAMS

1. PROJECT NO.: 558AH50125	2. GRANT NO.: G00 7502018
3. TITLE OF PROJECT: "A Model for Implementation of Bilingual Vocational Training"	
4. GRANTEE ORGANIZATION: El Paso Community College	5. PROJECT DIRECTOR: Dr. Beryl McKinnerney
6. PERIOD COVERED: FROM July 1, 1975	TO June 30, 1976

7. ACCOMPLISHMENTS *(including significant findings)* DURING THIS PERIOD. *(Key to approved project objectives. For training programs, include progress made toward placement of trainees and institutionalization of programs.)*

(as per attachment)

8. MAJOR ACTIVITIES AND EVENTS.

9. PROBLEMS.* *(Describe any departures, including timing, from the original project plan; discuss special problems encountered or expected.)*

10. PUBLICITY ACTIVITIES.* *(Itemize all newspaper or magazine articles or other published materials about your project. A copy of each item should be attached. List all visits to the project site by educators from other organizations.)*

11. DISSEMINATION ACTIVITIES.* *(Describe method of dissemination; identify recipients of dissemination activities.)*

12. PROGRESS ON DATA COLLECTION AND EVALUATION PLANS AND PROCEDURES.*

13. OTHER ACTIVITIES.*

14. STAFF EMPLOYMENT AND UTILIZATION.* *(Note any changes in staff personnel or staffing plans by additions, departures, or revisions of percentage of time or other commitments to the project.)*

15. STAFF DEVELOPMENT.* *(Describe any inservice training for teachers, counselors, and supervisors and any other activities of a professional nature for project staff.)*

* IF THERE IS NOTHING TO REPORT IN THIS SECTION, WRITE N/A.

. PARTICIPANT CHARACTERISTICS:

FOR EDUCATION PROFESSIONS DEVELOPMENT PROGRAMS *(13.416, 13.417, 13.503, 13.504, 13.505, 13.506, 13.545, and 13.546)* PROVIDE THE FOLLOWING DATA FOR PARTICIPANTS:

PARTICIPANTS	AMERICAN INDIAN		ORIENTAL		NEGRO/ BLACK		SPANISH-SURNAMED		ALL OTHERS		TOTALS
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
PRIMARY[1]											
ADMINISTRATORS											
GUIDANCE COUNSELORS											
TEACHER COUNSELORS											
TEACHER MEDIA SPECIALISTS											
TEACHER TRAINERS											
TEACHERS											
PARAPROFESSIONALS											
OTHERS *(Specify)*											
SECONDARY[2]											
TOTALS											

1 PARTICIPANTS FOR WHOM THE TOTAL PROJECT WAS DESIGNED
2 PARTICIPANTS WHO RECEIVED PARTIAL, SHORT-TERM, OR INTERMITTENT TRAINING.

SIGNATURE OF PROJECT DIRECTOR: Beryl McKinney DATE: Sept 8, 1976

7. Accomplishments

The El Paso Community College's Bilingual Skills Center has been conducting classes in the areas of Industrial Sewing Machine Repair Mechanic, Industrial Sewing Machine Operator, Radio-Television Repair Technician, Optical Lens Grinding Technician and the Building Trades under Part J, Bilingual Vocational Training projects provided through the United States Office of Education grant.

As a "Model for Implementation of Bilingual Vocational Training," the Bilingual Skills Center has been teaching classes since October 13, 1975. When the grant was announced, the development a Skills Center was initiated, beginning in July 1975, a building was leased and remodeled by the institution to house the new vocational training programs. Faculty and Staff were hired and instructional supplies and materials were purchased, but instead of utilizing one third of the grant funds to purchase equipment and to avoid the mass of record-keeping required for reports of equipment purchased through federal funds, El Paso Community College has purchased equipment for each of the five (5) occupational programs.

The results or benefits achieved in the first year of operation included; 1) individuals of limited English speaking ability were provided opportunties for bilingual occupational skills training, as well as bilingual language development to better function at the job entry level. Also a model for providing bilingual vocational training is being developed to be used or adapted for use by educational institutions involved in or anticipating involvement in providing vocational training.

This project has been divided into three thrusts; Thrust I - identification of program materials; Thrust II - implementation of bilingual vocational training; and Thrust III - model development and evaluation.

Three of the instructional programs have been approved by the Texas Education Agency to award college credits upon successful completion of the program, these are: Radio-T.V. Repair, Sewing Machine Repair and Optical Lens Grinding. The other two programs have been approved by T.E.A. under the Continuing Education and Community Services programs to award Continuing Education Units (CEU's).

Each of the training programs have been undergoing a series of instructional development procedures in order to provide an individualized and a Systematic approach to instruction. The College's Faculty Development Officer has conducted staff development in the area of curriculum writing. As a result of these efforts to individualize and systematize the instruction, student's progress has been measured in that instructor's relate the student is able to learn and retain more by working on instructional modules that cover only a portion of the total course. Students are also paired to provide a peer-tutor relationship to assist one another.

The Curriculum Developer/Translator has provided assistance to the Skills Center's faculty in systematization of the progams. Handouts and course outlines have been translated into Spanish for use by the students who are severely limited in their English-speaking ability. Instructional materials, already translated or those available in Spanish, have been identified and obtained for inclusion in the instructional program.

8. Major Activites and Events

The Bilingual Skills Center has established linkages with social service agencies, as well as local, state, and federal offices which have the responsiblity for assisting disadvantaged, unemployed or underemployed individuals. Other programs and program counselors often seek training programs at the

Skills Center where they may refer clients for the opportunity to receive saleable skills. More important is that employers are becoming interested in the programs by referring unqualified job applicants to the training and are hiring the graduates upon completion. In addition to the liasion maintained with other community programs for student referrals, the Bilingual Skills Center has developed community-based support in that factories in the needle-trades are providing information, materials, and employment opportunties to the program. Levi-Strauss, Mann Manufacturer and Farah Slacks, Inc., have donated materials for the sewing classes. On January 19, 1976, the Bilingual Skills Center expanded its English/Spanish instructional capabilities to Vietnamese, when Vietnamese resettlement refugees were accepted into the Sewing Machine Operators training program: Arrangments are being made to provide English classes to the Vietnamese students thru C.E.T.A. funding.

The Bilingual Skills Center will continue to provide instruction in the skills areas that were operational during the 1975-76 academic year, but as part of the college's committment, the training programs will be expanded to provide student services, ie., Intake and Assessment; Testing and Counseling; and Job Placement to individuals enrolled in the Texas Education Agency's programs to train Adults with Special Learning Needs. One of the objectives of the Vocational Education Amendment Act of 1968 is to provide meaningful vocational education to educationally disadvantaged persons. Currently, the Skills Center is providing occupational training or retraining for those adults with Special Learning Needs in the following areas:

1) Auto Body Repair Mechanic
2) Automotive Service Center Attendent
3) Automotive Electrical & Ignition System (Tune-up mechanic)

4) Cash Register Management (Cashier-Checker)

5) Secretarial Office Procedures

6) Typing Skills

7) Geriatric Nurse's Aide and Orderly

8) Pre-Employement Preparation and Career Awareness

These program are being planned to provide instruction and training on a "Clustered Concept" with an "open entry" and "open-exit" upon successful completion of course requirements. This method provides any students who cannot complete the entire program with an alternative. If the student cannot reach the highest skills level required, he/she can exit at any point during the period of instruction and still have a competency level skill with which to become employed.

Two training programs funded by the Bilingual Vocational Education grant during the academic year (Optical Lens Grinding Technician and the Building Trades) are being institutionalized and will not be considered for refunding. However, the expansion of those Texas Education Agency training programs and the present Bilingual Vocational Education programs of Industrial Sewing Machine Repair Mechanic and Industrial Sewing Machine Operator will continue to be systematized to develop individualized instruction in the "Cluster Concept" by groups or classes of machines. The Radio-T.V. Service Technician course will also be developed as an advanced technical skills training supplemented by a shorter Basic Electricity and Basic Electronics programs which prepare students for the Radio-T.V. Repair program under the "Clustered Concept".

The institution has committed budgeting funds to provide instructors, equipment and supplies for the program. The purpose of the proposed project is to provide student financial assistant and administrative and instructional support for students qualifying for Bilingual Vocational training.

9. Problems

The problems encountered to date can be grouped into two areas: initiation of the program; and program operation. The problems encountered in the initiation of the bilingual vocational program are those which are normally experienced in the opening of a new teaching facility with new equipment and staff. These problems included: Remodeling of teaching facility, purchasing of equipment, employment of faculty and staff, and identification of students.

Problems involvled in the program operation included: identification of adequate and valid testing instrumentation for limited English speaking descriminations; arranging course offerings to meet student needs; locating financial assistance for students in need and with financial diffculties; and students withdrawing from class because of financial difficulty. One of the most exasperating problems encountered was the identification of qualified, bilingual instructors in the vocational programs. For example the Optical Lens Grinding instructor was not employed until December 15, 1975. This caused the delay in initiation of the optical lens grinding program.

10. Publicity Activities

The Bilingual Skills Center was given support from the Public Affairs Office of the El Paso Community College by placing articles, advertisements in the local newspapers and by providing guest appearance on local Spanish radio and television stations to explains the programs and to solicite students. Program directors and counselors from other programs were invited to tour the Skills Center faciliities, meet the staff and make student referrals to the training programs. Advisory Committee members were also helpful in identifying students for training.

11. Dissemiation Activities

In addition to the publicity given the program, the director and staff have gone to several agencies and explained the purpose of the Bilingual Skills Center. Training schedules have been distributed to agency counselors and a brochure and pamphlet is being developed in both English and Spanish. During El Paso Community College week April 9-16, 1976, the Bilingual Skills Center held on "open house" and invited business and industry, as well as social service agency directors and counselors and other interested individuals to tour the facilities and view the training programs being conducted. In February, the Skills Center was invited to participate in the planning of a Vocational Occupational Education Impact Conference sponsored by the governor's Advisory Council for Technical-Vocational Education. This activity served to inform other education institutions and school districts of the training programs available at the Bilingual Skills Center for persons of limited English speaking ability.

12. Progress on Data Collection and Evaluation Plans and Procedures

A consultant visited the Skills Center on March 2nd and 3rd and revisited on April 1, 1976. The purpose of the consultant's visit was to provide the Skills Center staff personnel with an outside evaluation of the progress made as of that date. The report is enclosed in the next section.

13. Other Activites

As per Memorandum, dated June 10, 1976 to Part J Project Directors from Doris V. Gunderson, the items requested is hereby furshished:

Items 1, 2, 3, and 4 are attached.

Originally, it was projected that 136 students would be served through the five occupational programs. Attached is a table of unduplicated head count of the number of students served through this grant.

Enrollment: October 13, 1975 to May 28, 1976

Overall the program as funded by Part J of the Bilingual Vocational Training project was an over whelming success in that is provided an Educational-Employment Opportunity to individuals who were of limited English speaking ability and whose limitation and lack of a saleable skill prevented them from becoming gainfully employed.

BILINGUAL SKILLS CENTER
EL PASO COMMUNITY COLLEGE
EL PASO, TEXAS
PART J. IMPLEMENTATION OF A
MODEL FOR BILINGUAL VOCATIONAL EDUCATION
OCTOBER 13, 1975 TO 28 MAY 1976

Program	total no.of students enrolled	no.of stu. to be trained	no.of graduates	early completion	no.of stu. dropped	carr over
Building Trades	36	20	36	0	0	0
Optical Lens Technician	21	20	18	0	3	0
Radio-T.V. Repair	18	20	11	0	7	0
Sewing Machine Operator	110	20	66	8	34	2
Sewing Machine Repair	23	20	12	2	8	3
TOTAL	210	100	143	10	52	5

BROCHURE

29

EL PASO COMMUNITY COLLEGE
BILINGUAL SKILLS CENTER
1116 E. Yandell

Director: Ruben C. Ochoa
Counselor: Edgar A. Delgado

Instructor: Margie Bailey, Bertha Gauna, Versie Herring, Rosalie Gonzalez Martin, and Rufino Rodriguez

The Skill Center of El Paso Community College offers adult vocational training on a post-high school basis. The objectives of the Skills Center are to impart the necessary work knowledge and develop the occupational skills required for entry into employment in business or industry in El Paso and surrounding areas.

Adult vocational training is offered on a tuition basis in the following skill areas:

(1) Business and Office Procedures
(2) Radio/TV Repair
(3) Cash Register Management
(4) Sewing Machine Operator
(5) Sewing Machine Repair

In addition, special training programs are developed to provide skill training to meet the needs of local businesses and industries.

In addition to the adult vocational programs offered on a tuition basis, special grants and contracts are received to meet the training needs of special interest groups. The El Paso Community College works with the Texas Education Agency to provice skill training for disadvantaged adults. Programs normally offered through this grant arrangements include:

(1) Auto Electrical and Ignition
(2) Auto Body Repair
(3) Automotive Service Center Attendant
(4) Building Maintenance
(5) Cashier Checker
(6) Nurses Aide
(7) Scretarial Office Practice
(8) Unit Clerk
(9) Typing
(10) Pre-employment Preparation

Students interested in program offered for disadvantaged adults should contact the Director of the Skill Center for information on admission requirements to these programs.

ADMISSION REQUIREMENTS

Admission to the Skill Center may be obtained by any one of the following:

(1) Provide an official transcript verifying satisfactory completion of high school.
(2) Provide official set of scores indicating satisfactory completion of the General Education Development Test (GED).
(3) Be 17 years of age, out of high school for one year, and provide the Director of the Skill Center with scores from the Counseling Office which show tested ability to function at the 10th grade level.
(4) By special approval of the Director of Occupational Education and the instructor.
(5) For the Sewing Machine Operator program, an applicant must provide a set of scores which show tested ability to function at the 7th grade level.

Students who are not adequately prepared to enter training in their desired vocational program are encouraged to enroll in the Pre-Vocational Job Related Education courses offered through the Skill Center and/or Developmental Studies. Pre-Vocational courses are designed to imporve, review and refresh the general high school educational level of the student. Included in the Pre-Vocational courses is instruction in General Education Development and English as a Second Language.

Students must meet the specific admission requirements established for their chosen adult vocational programs. These admission requirements are denoted according to each program area.

Scheduling

Most adult vocational programs offered through the Skill Center will meet three (3) hours per day, five (5) days per week for part-time students and six (6)

hours per day, five (5) day per week for full-time students.

How to Enroll

(1) Contact the Director of the Skill Center
(2) File an application with the Director of the Skill Center
(3) Provide satisfactory scores on aptitude and mechanical testing
(4) Submit required materials evidencing satisfactory compliance with admission requirements.
(5) Tuition and fees must be paid before a person is officially enrolled.

Certificates

Students who satisfactorily complete the minimum objectives of the training program will receive a Certificates of Completion. Students who do not complete the minimum objectives of the training will receive a Certificate of Attendance.

DISMISSAL/TERMINATION

A student may be dropped for misconduct or for consistenly poor work. Students who enter without any serious purpose and whose work is unsatisfactory will not be permitted to remain in the training program.

TUITION AND FEES

Tuition and fees for long-term adult vocational programs offered at the Skill Center of El Paso Communtiy College are charged on a monthly basis. Tuition must be paid by the 15th of the preceeding month. No reduction in tuition is allowed for the months during which times Christmas, spring, and summer vacations are observed. The student must purchase books and tools requried for the vocational program.

Adult Vocational Programs - Day

Normally, students will enroll for vocational programs based on a full-time or part-time enrollment. A full-time sutdent enrolls for a minimum of 25 contact hours per week. A part-time student enrolls for a minimum of 15 contact hours per

week. Accordingly, tuition rates for these students should be:

Length	Tuition
15 hours/week	$18/mo.
25 hours/week	$30/mo.
30 hours/week	$36/mo.

Adult Vocational Programs - Evening

Students enrolled in an evening program will normally register for 12 hours of instruction per week. The minimum monthly tuition will be $15. A student who has not paid the required tuition according to the payment schedule indicated above will not be allowed to continue in the program.

Out-of-State Fee

An out-of-State fee of $5 per month for full-time students and $2.50 per month for part-time students will be charged.

RADIO/T.V. REPAIR

The Radio/T.V. Repair program at El Paso Communtiy College is a one year certificates program. Upon completion of the program the student will be able to trouble shoot and service most radio and T.V. equipment. The graduate of the program will be qualified to work in an entry level position as a serviceman.

Length of Program

The Radio/T.V. Repair program consists of 1,320 hours of instruction. Full-time students will be enrolled six (6) hours per day, five (5) days per week for 44 weeks. A maximum of twenty (20) students per year may be admitted to the program.

Admission Requirements

The Radio/T.V. Repair program is open for male or female applicants 17 to 55 years of age. The applicant must meet the admission requirements of the Skill

Center, must have a high school diploma or its equivalent, must be physcially fit, and have normal color perception. The applicant must provide an official copy of satisfactory scores on aptitude and mechanical tests administered through the counselor's office.

Attendance

Students are required to attend lecture and laboratory sessions. Any student who is absent from class for five days may be dropped from the class. Any student who adopts a pattern of absenteeism or tardines may be dropped from class at the discretion of the instructor.

Radio/T.V. Program

Course	Clock Hours
Basic Electricity	120
Basic Electronics	120
Basic Radio-Block Diagram I	60
Basic Television-Block Diagram I	60
Television Symptom Diagnosis	120
Television Symptom Diagnosis Application	210
Customer Relations and Shop Management	30
Basic Electronics II	80
Basic Radio-Circuitry II	120
Basic Television-Circuitry II	400
Total	1,320

SEWING MACHINE REPAIR

The Sewing Machine Repair Program at El Paso Community College is a 480 hour certificate program. Upon completion of the program, the student will be able to trouble shoot and repair sewing machines used in industrial sewing factories. The graduate of the program will be qualified to work in an entry level position as a sewing machine mechanic.

Length of Program

The Sewing Machine Repair program consists of 480 hours of instruction. Special training programs of 90 or more contact hours may be offered to meet the needs of industry.

Admission Requirements

The Sewing Machine Repair program is open for male or female applicants 17 to 55 years of age. The applicant must meet the admission requirements for the Skill Center, must have a high school diploma or its equivalent and must be physically fit. The applicant must provide an offical copy of satisfactory scores on aptitude and mechanical tests administered through the counselor's office.

Attendance

Students are required to attend lecture and laboratory classes. Any student who is absent from class for five days may be dropped from the class. Any student who adopts a pattern of absenteeism or tardiness may be dropped from class at the discretion of the instructor.

Sewing Machine Repair Program

	Unit	Clock Hours
I.	Single Needle Lockstitch - Singer 281	30
II.	Single Needle Lockstitch - Union Special 63400	30
III.	Double Needle Lockstitch - Singer 212	30
IV.	Double Needle Lockstitch - Union Special 62200	30
V.	Single Needle Overseamer - Union Special 39500	30
VI.	Double Needle Safety Chain Stitch - Union Special 39800	35
VII.	Double Needle Chain Stitch - Union Speical 56500	35
VIII.	Double Needle Chain Stitch - Union Special 35800	35
IX.	Double Needle Chain Stitch Bander - Singer 302	40
X.	Single Needle Bartack - Singer 269	45
XI.	Single Needle Chain Stitch Button Holder - Reece 101	50
XII.	Single Needle Lockstitch Button Sewer - Singer 269	30
XIII.	Single Needle Lockstitch - Union Special 63900 M	30
XIV.	Single Needle Chain Stitch - Union Special 300-20	30
XV.	Shop Safety and Customer Relations (continuous throughout course)	
	Total	480

SEWING MACHINE OPERATOR

The Sewing Machine Operator program at El Paso Community College is a short-term adult vocational training program designed to provide students with those basic knowledge and skills requisite for job-entry level employment as a sewing machine operator. The basic training program is 60 to 240 contact hours. Graduates of the program will be qualified to work as an industrial sewing machine operator.

Length of Program

The Sewing Machine Operator program consists of 60 to 240 hours of instruction. Full-time students will be enrolled six (6) hours per day, five (5) days per week. Part-time students will be enrolled three (3) hours per day, five (5) days per week.

Admission Requirements

The Sewing Machine Operator program is open to applicants 17 year of age or older. The applicant must be physically fit and must desire to go to work as an industrial sewing machine operator upon completion of the program. Although a high school diploma is not required it is recommended that the applicant without a high school diploma pursue the GED while attending the training program.

Attendance

Students are required to attend lecture and laboratory classes. Any student who is absent from class for five (5) days may be dropped from the class. Any student who adopts a pattern of absenteeism or tardiness may be dropped from the class at the discretion of the instructor.

The student will be provided skill training in the basic operations of the following types of machines: single needle lockstitch, double needle lockstitch,

single needle chainstitch, double needle chainstitch, safety stitch and serger, bartacker, and button hole machine. The student will also be taught safety and maintenance procedures for operating industrial sewing machines. A student may enroll for instruction in operation of one or more of the above machines.

PRE-VOCATIONAL PROGRAMS

The Pre-Vocational Programs taught through the Skill Center consist basically of General Education Development and English as a Second Language. The Pre-Vocational program is designed to develop the students' basic knowledges and skills to meet the minimum admission requirements of the Skill Center and the students' selected adult vocational program.

In addition to the Pre-Vocational program taught at the Skill Center, students may attend the Developmental Studides Skills program is designed to supplement the College curriculum by providing instruction to students who want and need assistance in successfully completing their college course. The main objective of the program is to help students function adequately in their intended program of study. A secondary objective is to increase entry-level skills of students who need assistance before entering college courses.

Length of Program

The General Education Development Program is an 80 contact hour program. If the student does not complete the G.E.D. in the 80 hour period, he/she may enroll for another 80 hour course. The English as a Second Language course is a three level program with each level consisting of a 45 contact hour course. Upon satisfactory completion of each level, the student may proceed to the next level. The G.E.D and E.S.L programs are operated on an open entry, open exit concept. The courses are individualized to permit students to determine the number of hours of instruction to attend each week. The G.E.D and E.S.L labs are open from 9:00 a.m. to 12:00 noon and 1:00 p.m. to 5:00 p.m.

TRAINEES GUIDE

EL PASO COMMUNITY COLLEGE
BILINGUAL SKILLS CENTER

ORIENTATION CERTIFICATE

This certifies that I have received a formal or informal orientation. I have received a copy of the Guide for Trainees which I may keep. I have read the "Guide" and its contents have been explained to me.

I understand that if I have any questions concerning procedures contained in the "Guide" I may go to my counselor or instructor for clarification.

I understand that I should review the guide occasionally, and should read it through at least once a month.

_____ _____
trainee's signature date

EL PASO COMMUNITY COLLEGE
BILINGUAL SKILLS CENTER
1116 E. Yandell Street
Telephone: 532-3685

GUIDE FOR TRAINEES

I. General Information

A. The purpose of this guide is to tell something about the El Paso Community College Skills Center and its method of operation. The training program conducted in the Skills Center is, and of necessity must be, a cooperative effort on the part of both the trainees and the Center staff. To participate effectively each person must know what is expected of him and what he can expect from others.

B. The Skills Center is operated by El Paso Community College Junior College District. The staff includes administrative personnel, skill instructors, and counselor. The goal of the Center is to provide the skill training, and preparation necessary to qualify trainees for employment. Further, the Center will assist insofar as possible in the work of job development and placement and in obtaining supportive services when required.

C. Upon enrollment in the Center, each trainee will be considered individually in order to develop a training program fitted to this exact needs and desires. Trainees who enroll in any one skill area may receive varying amounts of training in each area of specialization. The course content and the length of training may be different for each person, depending on his individual preference, needs, and abilities.

II. Guidelines Applicable to the Training Day

A. Class Schedule

1. Classes begin at 8:30 a.m. and end at 4:30 p.m.

2. There will be an hour for lunch. The exact time may vary depending on class schedules.

3. Fifteen minutes will be allowed each morning and afternoon for break periods.

B. Classes must begin on time. All trainees will be in the assigned class area ready for work at the appointed time. Breaks are provided so that trainees may relax, have coffee or other refreshments, use the rest rooms, etc.

C. For safety reasons, smoking is permitted only in designated areas and at designated times. Smoking is not permitted in rest rooms, classrooms, or shop areas.

D. Counselor is available for trainees who desire counseling services. To see a counselor, make an appointment with the receptionist, and obtain the instructor's permission before leaving class. Visiting a counselor does not excuse a trainee from a scheduled class period unless he has been excused by the instructor.

E. Telephone and Messages. Center telephones are to be used for business only. Trainees should inform relatives and friends that they will not be called out of class for telephone calls, except in extreme emergencies. However, they may leave messages so that calls may be returned during breaks or the lunch periods.

F. Visitors are not allowed in classrooms except on official business. Do not interrupt other classes by stopping to visit. Trainees expecting visitors should ask them to come to the Reception Desk.

G. Conduct. All personnel at the Center are expected to conduct themselves properly at all times. This means showing proper respect and consideration to other trainees and to staff members. If an instructor or other staff member should correct a trainee's behavior it is for the purpose of helping the trainee avoid problems with his employer later.

There are some serious types of misconduct which can result in immediate termination from Skills Center training without good cause.

1. The use of illegal drugs or alcoholic beverages during training hours is prohibited. Anyone who uses or is under the influence of alcohol or drugs during the training day, including lunch and breaks periods, will be terminated immediately.

2. Anyone bringing a weapon into the Center will be terminated immediately.

3. A physical assault on any other person while on the Center premises will result in immediate termination for bad cause.

4. Refusal to accept directions in class from an instructor to complete assignments, to participate in class work, to take tests, or examinations, or to observe safety precautions will result in a recommendation for termination.

5. Careless or dangerous use of tools and equipment may result in recommendation for termination.

H. Clothing. The primary consideration in determing the propriety of clothing in shop training areas is safety. In other classes good taste will determine the type of clothing to be worn. Part of the training at the Center will concern proper attire in the business world. Any criticism or suggestions offered by instructors or counselors concerning clothing are part of the overall training to increase the trainee's employment potential.

I. Parking. Parking in the vicinity of the Skills Center is extremely limited. The Center has one lot for student and staff parking, located on the side of the building. None of the parking areas available should be considered to be secure. Leave nothing of value in a parked automobile, and always lock all doors. No parking in front of business loading zones adjacent to Skills Center.

III. Early Completion

A. An instructor may recommend a trainee for early completion of a course under the following conditions:

1. The trainee has reached his maximum level of performance and additional training would not be effective.

2. The trainee has achieved the goals he has set for himself.

3. Trainee has met all performance standards set by the instructor in less than the maximum course hours prescribed.

B. Final determination regarding early completion will be made by the Center Director after the recommendation has been reviewed by instructor and Center counselor concerned, and any other agency counselor or representatives who might be concerned.

C. Upon early completion a certificate of proficiency will be awarded for the highest skill level achieved by the trainee.

D. Termination from the Skills Center can be for the following reasons:

1. Excessive absences and tardiness

2. Misconduct

3. Failure to follow rules and regulations outlined in these policy guidelines.

4. Inability to successfully complete the minimum requirements of the skills training or course objectives.

5. Upon successfully completing the minimum course requirements and earning a signed Certificate of Completion.

6. Upon completing the course materials, but not achieving the minimum levels of proficiency in the skills being trained for. Persons will be awarded a Certificate of Attendance at the end of the program.

7. Persons failing to complete the minimum course requirements and dropping prior to the final class period.

7. Leaving a class without permission, or failure to report to a class, will result in the trainee being charged with unexcused absence for the period of time involved. The trainee will be warned that a repetition may result in termination.

8. Should a circumstance arise in which a trainee feels that he must leave early for a reason which would not warrant an excused absence, he must notify the instructor or counselor before leaving. While the absence may not be excused, it would not then be considered misconduct.

B. Policy Concerning Unexcused Absences

1. If a trainee knows he will be absent on a certain day he should notify his instructor as soon as possible.

2. A trainee absent without excuse for a total of five days or forty hours in a calendar month will be recommended for termination.

3. A trainee absent without excuse for five days or 30 hours in a five month period will be recommended for termination.

4. No basic allowance will be paid for hours or days of unexcused absence.

C. Policy Concerning Excused Absences

1. Absence for medical treatment of the trainee by a doctor or at a medical facility will be excused. Documented evidence of such treatment must be given to the instructor.

   a. An excuse is valid only for the time actually spent in the doctor's office or at the medical facility, plus a reasonable time for travel.

   b. A trainee is expected to return to class following medical visit unless the doctor specifies in writing that the trainee's physical condition does not permit it.

2. Attendance at funerals of members of the immediate family may be excused.

   a. Immediate family shall include father, mother, sister, brother, husband, wife, or child, and other relatives if the latter are actually members of the trainee's household.

   b. No more than three days will be excused.

3. Absence caused by domestic circumstances, such as serious injury to a member of the immediate family, conditions which would endanger the health or safety of the immediate family, or similar emergency circumstances may be excused.

IV. Absence and Tardiness. The training courses conducted at the Center are concentrated and intense. It is important that trainees attend every day and arrive on time. Poor attendance or habitual tardiness may result in termination.

A. Policy Concerning Tardiness or Partial Absence

1. If a trainee finds that he will be late to the 8:30 a.m. class he should make every effort to notify the Skills Center receptionist as soon as possible. This call in itself does not excuse being late or absent, but will be considered in determining whether or not such lateness or absence should be excused. The Skills Center telephone number is 532-3685.

2. A trainee will be reported as tardy if he arrives in class after the instructor has checked attendance. This applies to each class period, not just the first period of each day.

3. Attendance is recorded by the tenth of an hour. Any tardiness of six minutes or less will be reported as one-tenth of an hour absence. Tardiness of seven to 12 minutes inclusive will be counted as two-tenths of an hour of absence. (Note: For trainees receiving Veterans benefits any absence of less than an hour (tardy) will be counted as a full hour of absence.)

4. A trainee may be recommend for termination because of excessive tardiness. Excessive tardiness for this purpose is defined as:

   a. Seven tardy reports in any four week period. This includes not only being late the first attendance check in the morning but any other attendance check made during the school day.

   b. Ten tardy reports in any eight week period.

   c. Loss of four hours of school time during the four week period due to tardiness.

   d. Loss of six hours of school time during any eight week period due to tardiness.

5. If a trainee misses a total of two hours of a class day he will be considered absent for that day. The instructor will determine whether or not the absence is excused.

   a. Should a trainee be absent without excuse for two hours or more, he will be paid the training allowance for those hours actually present.

   b. There will be more than one attendance check each day. Attendance may be checked at the beginning of each new class period, and after each break and lunch period.

6. If a trainee must leave class early for any reason he must notify the instructor as far in advance as possible.

6. Absence due to transportation difficulties, such as bus strikes or hazardous traffic conditions due to weather, may be excused. If bus transportation is available, car trouble or bad weather will not excuse an absence.

7. Trainees will be excused for appointments at the food stamp office.

8. A referral agency or the prime sponsor may excuse their trainees' absence at any time. Such excuses must be in writing and must clearly excuse the absence, not merely recommend that it be excused.

9. Holidays or other non-training days when the Center is closed will normally be treated as excused absences. However, these will be considered unexcused if the trainee is absent unexcused on both the day preceding and the day following the holiday or other non-training day.

D. Reconsideration of Unexcused Absence

1. If a trainee is not satisfied concerning the determination of an unexcused absence by the Skills Center he may request and receive reconsideration of the determination. In such cases, the payment for the period may be processed upon the basis of the Skills Center's determination without prejudice to the right of reversal upon subsequent reconsideration.

2. The trainee must request reconsideration of an unexcused absence during the five working days following the date on which he signs the request for allowance.

V. Procedures for Handling Grievances and Problems of Trainees

A. Trainee problems and grievances can be divided generally into two categories.

1. Those which involve the trainee's participation in classroom activities or involve the general training facility environment.

2. Those which involve the trainee's personal life or supportive services available to him.

B. Some examples of matters involving the classroom or Skills Center are as follows:

1. Inability to understand the instruction.

2. A feeling that additional help is needed.

3. Actions or policies of the instructor which appear to be unfair.

4. Problems caused by other students.

5. Classroom or other facility conditions which hinder the learning process.

6. Behavior by instructor or other students which might be considered to be verbal or physical abuse.

C. When a trainee believes that he has a problem or grievance of this type he should bring it to the attention of the instructor or Skills Center counselor in an attempt to reach a satisfactory resolution of the matter. If the trainee believes that his effort to resolve the problem with the instructor or counselor has failed he should then request a meeting with the Skill Center Director, Director of Occupational Education, Dean of Instruction and the College President (in that order). If the trainee feels that he has not resolved the problem after discussing it with the Skills Center staff he should then contact his referral agency counselor.

D. Following are some examples of problems which involve the trainee's personal life or supportive services:

1. Medical problems of trainee or his family.

2. Financial difficulty.

3. Internal family problems.

4. Legal difficulty.

5. Transportation problems.

E. When a trainee has a problem of this type he should notify the instructor and ask permission to see the Skills Center counselor. The counselor will assist the trainee in resolving his problem and will contact the appropriate supportive service, the trainee's referral agency or other agency as necessary.

VI. Weekly Request for Allowances

A. Trainees eligible to receive Bilingual Grant allowances will sign a request allowances each Friday. A trainee must be in class on Friday from 8:30 a.m. to 3:30 p.m. Should a trainee, after signing the request, leave before being dismissed or properly excused, the request will show unexcused for that time.

B. If a trainee is absent on Friday, he must sign his request the following Monday as early as possible. Failure to do so will probably delay receipt of allowances for at least a week.

VII. Procedure In Case of Injury

A. If you should suffer any injury, no matter how minor, while at the Skills Center report it immediately to an instructor, counselor, or the Director.

B. Failure to report an injury on the day it occurs will release the Skills Center from any further responsibility in the matter.

VIII. Reports Submitted on Trainees

A. Referral agencies are notified daily of unexcused absence or when absence or tardiness appears to be a problem.

B. Monthly progress reports are submitted to the trainee's referral agency, upon request of the referral agency.

C. A final evaluation is submitted to the trainee's referral agency. This report describes the trainee's performance and level of skills attained while in the Skills Center. This evaluation may be used as the basis of a recommendation for employment. It will describe not only the trainee's technical ability but also his work habits, depenability, initiative, and other traits of interest to employers.

Ruben C. Ochoa

Ruben C. Ochoa, Director
El Paso Community College
Bilingual Skills Center

APPENDIX

Exam for Identifying Limited English Usage

for

Native Speakers of Spanish

by

Edwin P. Bowden

supervised

by

George W. Ayer, Ph.D.
Modern Language Department
(Test Construction)
University of Texas at El Paso

Contents

1. Table of Specifications plus Explanation
2. Interviewer's Rating Sheet
3. Self-Appraisal Proficiency Form
4. Instructions to the Proctor (English)
5. Instructions to the Examinee (Spanish)
6. Sample of the Exam Booklet
   a. Test # 1 : Interpreting Visual Situations (picture booklet included)
   b. Test # 2 : Vocabulary # 1
   c. Test # 2 (cont.) : Vocabulary # 2
   d. Test # 3 : Structural Usage
   e. Test # 4 : Interpreting Academic Statements
   f. Test # 5 : Signs and Sequences
   g. Test # 6A : Reading Comprehension
   h. Test # 6B : Informational Recall
7. Sample of the Answer Sheet

Copyright (c) 1976 by Edwin P. Bowden. All Rights Reserved

TABLE OF SPECIFICATIONS
IDENTIFYING
OBJECTIVES OF LIMITED ENGLISH USAGE
E.P.B.

I	II	III	IV	V	VI
12.5%	25%	25%	12.5%	12.5%	12.5%
Identification of noticeable limitation in interpreting simple visual situations (10 items)	Identification of limited use of elementary to high school level vocabulary. (20 items)	Identification of awkward sentence structure usage resulting in limited effectiveness in communication. (20 items)	Identification of limited ability in interpreting academic statements (10 items)	Identification of problems in following instructions in English (10 items)	Identification of difficulty in reading comprehension (10 items)

Explanation to Table of Specifications

(Weights as they relate to effect on communication)

Certain aspects of this exam will show limitations in the use of English which definitely impede communication. The weights on these questions will be rated high. Other aspects of this exam will show limitations of English which indicate a lack of maximum effectiveness in English communication. The weights on these questions will be rated low.

Maximum effectiveness is interpreted as speaking English with native or near-native fluency. Impeded communication is when a central thought is partially or completely blocked for lack of proper usage.

The weights as related to the question types are also correlated with the subsequent rating sheet for the purpose of rounding out an oral evaluation of the subject. Included herewith is a student self-appraisal form written in Spanish as a further aid in determining a subject's limitation in the practical use of English. It may be presented orally, in written form or both as required.

The rating sheet includes a list of language objectives which also characterize a subject's limitation in speaking English. The list is divided into two groups: (1) Subject Rating Scale (2) Proficiency Rating Scale. The ratings are from 0 - 5 on both scales. A "0" score automatically eliminates the subject. Ratings from 1 - 5 represent varying degrees of limited English usage.

There is a total of eighty questions on the exam comprising six groups of questions corresponding to the ratings of 0 - 5. The correlation of the table of specifications with the rating scale is in reverse order. Deficiency in the first group of ten questions corresponds to level "5" with a percentage weight of 12.5%. Deficiency in the second group of twenty questions corresponds to level "4" with a percentage weight of 25%. Deficiency in the third group of twenty questions corresponds to level "3" with a percentage weight of 25%. Deficiency in fourth group of ten questions corresponds to level "2" with a percentage weight of 12.5%. Deficiency in the fifth group of ten questions corresponds to level "1" with a percentage weight of 12.5%. And, deficiency in the sixth group of ten questions corresponds to level "0" with a percentage weight of 12.5%; this percent subtracted from the total weight of the exam would allow the subject 86.5% proficiency sufficiently qualifying him for level "0". The "0" level qualification is an automatic disqualification in terms of limited usage discrimination.

LIMITED ENGLISH USAGE

INTERVIEWER'S RATING SHEET
E.P.B.

Below you will find a list of language objectives which characterize a Spanish speaking subject's limitation in speaking English. The list is divided into two groups: I. Subject Rating Scale II. Proficiency Rating Scale. This Rating Sheet may be used in conjunction with the EILEU following an oral interview with each examinee.

The ratings are from 0 - 5 on both scales. A "0" score automatically disqualifies a subject. Ratings from 1 - 5 represent varying degrees of limited English speaking ability characteristic of the majority of monolingual and bilingual subjects.

The interviewer will circle the appropriate number on each rating scale upon interviewing the applicant, reviewing the subject's self-appraisal proficiency form and checking the EILEU score of the interviewee.

I. Subject Rating Scale

0 - Monolingual speaker of English or bilingual with native or near-native fluency in English

1 - Bilingual speaker of Spanish and English limited in making a fluent transition from Spanish to English

2 - Native speaker of Spanish who speaks English limited by noticeable lack of clarity.

3 - Native speaker of Spanish who speaks English limited by substandard grammatical forms and phonology

4 - Native speaker of Spanish who speaks ungrammatical English

5 - Monolingual speaker of Spanish regardless of exposure to unsystematic English vocabulary

II. Proficiency Rating Scale

0 - Responses are automatic and natural indicating a monocultural background in English or a reciprocal bicultural influence in English and Spanish

1 - Comprehension and oral communication are generally good but characterized by a noticeable limitation in the use of specialized vocabulary

2 - Communication skills in English are generally understood but oral sentence structure is awkward resulting in contextual distortion

3 - English usage characterized by linguistic and phonemic transference from Spanish which severely interferes with effective communication. Minimal differences in meaning are obscured by improper word order, tense and pronunciation.

4 - English usage cannot be understood 25% of the time. Speaker uses word level responses in order to avoid more involved grammatical forms.

5 - Reponses range from a non-verbal level to an unsystematic knowledge of English vocabulary.

SELF-APPRAISAL PROFICIENCY OF LIMITED ENGLISH USAGE

(Una lista de preguntas para evaluarse en el uso practico del ingles)

		SI	NO
5 ___	¿Puede Ud. usar un mínimo de treinta palabras en inglés menos los números y los días de la semana?	___	___
4 ___	¿Puede Ud. preguntar que hora es, que día es o a que fecha estamos?	___	___
	¿Puede Ud. pedir una simple comida en un restorán donde se hable solamente inglés?	___	___
3 ___	¿Puede Ud. entender y responder correctamente a preguntas en inglés tocante a su nacionalidad, estado civil, ocupación, fecha y lugar de nacimiento?	___	___
	¿Puede Ud. hacer una presentación social en inglés usando también las expresiones apropiadas de despedirse?	___	___
2 ___	¿Puede Ud. con su inglés describir en pocos detalles su trabajo actual o el trabajo más reciente que ha tenido?	___	___
	¿Puede Ud. recibir y dar en inglés recados sencillos por teléfono?	___	___
1 ___	¿Puede Ud. dar en inglés información detallada de su familia, su casa, y el tiempo climático?	___	___
	¿Se siente Ud. seguro que comprende lo que le dicen en inglés los nativos de habla inglesa y que entiende a lo menos 80% del tiempo?	___	___
0 ___	En el ambiente de su empleo, ¿puede Ud. hablar en inglés tocante a los detalles del sueldo, calificaciones, horas del trabajo y tareas especiales?	___	___
	¿Puede Ud. ser interprete al inglés para una conversación de las situaciones representadas por las preguntas de arriba?	___	___

INSTRUCTIONS TO THE PROCTOR

1. This exam will help to determine the degrees of limitation in English usage by subjects who are of Spanish speaking origin. There are eighty items in this exam.

2. The exam is designed so that it may be administered orally, if necessary, for reenforcement or to insure comprehension of the stems of each item.

3. Each participant should be provided with one (1) test booklet, one (1) answer sheet, two (2) number two pencils and one (1) picture booklet necessary to complete Test # 1 : Interpreting Visual Situations.

4. The testing group should be instructed to fill in the personal data on the answer sheet. They should be reminded not to mark in the test booklet or in the picture booklet and not to begin until told to do so.

5. This is not a speed test; therefore, a specific time limit is not included in the instructions. However, the proctor thould determine a reasonable amount required for the majority of each group to finish the exam.

6. The group should be encouraged to attempt all items since each score will be based on the number of correct answers. They should be cautioned to shade only one corresponding space for each item in the exam booklet. All answers must be recorded on the answer sheet. If an answer is changed, it should be completely erased.

7. Upon completion of each exam, be sure the answer sheet is checked for name, today's date, test booklet number, age, sex, address, native language, second language, and place of birth.

INSTRUCCIONES AL PARTICIPANTE

1. Este examen es para determinar el nivel de su uso práctico de inglés. Hay ochenta preguntas escritas en español. Para cada pregunta habrá hasta cuatro respuestas en inglés o español. Escoja solamente una de las alternativas.

2. Usted debe de tener una hoja aparte para grabar sus respuestas. En esta hoja marque (sombree) la respuesta correspondient a la pregunta que se encuentra en el folleto de preguntas. Para hacer la primera prueba del folleto tiene que usar el folleto de retratos.

3. Arriba en la hoja de respuestas ponga los datos según lo que le diga la persona que administra el examen. Hay que escribir su nombre completo poniendo su apellido paterno al último, la fecha de hoy, el numero del folleto que usa; apuntar su edad, sexo y direcciónñ e indicar su lenguaje nativo (el idioma que usa más en casa), su segundo lenguaje (el idioma que usa menos en casa), y su nacionalidad.

4. No raye ni apunte en el folleto de preguntas ni en el folleto de retratos. No abra los folletos hasta que le sea señalado.

5. Lo siguiente en un ejemplo de las preguntas y respuestas:

Pregunta (en el folleto):

¿Cuántos años tiene el?

(A) He is twenty five years old.
(B) She is twenty five of age.
(C) He has twenty five years old.
(D) She has twenty five years of age.

Respuesta (en la hoja de respuestas)

	A	B	C	D
1.	( )	( )	( )	( )

TEST # 1 : Interpreting Visual Situations

Examine las figuras del folleto. Observe las representaciones e interprete cada situación al inglés escogiendo la correcta frase descriptiva. Sombree entre paréntesis la letra correspondiente en su hoja de respuestas.

Fig. 1

(A) Man is standing
(B) Teacher was standing
(C) Boss will stand
(D) Priest stands

Fig. 2

(A) Student is approaching
(B) Woman approaches
(C) Secretary reproaches
(D) Sweetheart may approach

Fig. 3

(A) Man took pencil
(B) Man had taken pencil
(C) Man takes pencil
(D) Man should take pencil

Fig. 4

(A) Man tore pencil
(B) Man has torn pencil
(C) Man breaks pencil
(D) Man has broken pencil

Fig. 5

(A) Woman folds arms
(B) Man looks at woman
(C) Client seems impatient
(D) Patient feels sick

Fig. 6

(A) Man speaks at woman
(B) Woman looks at man
(C) Man talks about woman
(D) Woman speaks toward man

Fig. 7

(A) Wife angrily snatches paper
(B) Secretary clears desk
(C) Woman reaches for paper
(D) Man fires woman

Fig. 8

(A) Student is frustrated
(B) Woman becomes irritated
(C) Woman throws paper and pencil
(D) Pencil and paper are thrown away

Fig. 9

(A) Male observes female
(B) Secretary glares at boss
(C) Professor reproaches student
(D) Lady makes pass at gentleman

Fig. 10

(A) Man offends woman
(B) Woman turns away
(C) Employee is modeling
(D) Employer regards model

Test #1
Fig.
5

Test #1
Fig.
6

59

TEST # 2 : Vocabulary # 1

Conteste las preguntas o complete las oraciones escritas en español escogiendo una de las cuatro respuestas escrita en inglés. Sombree entre paréntesis la letra correspondiente en su hoja de respuestas.

11. ¿Cuál de los siguientes es el pariente más cercano?

(A) uncle
(B) grandmother
(C) daughter
(D) stepfather

12. Si hoy es lunes, hoy en ocho días será ...

(A) Friday
(B) Saturday
(C) Sunday
(D) Monday

13. Los trastos se lavan en ...

(A) the sink
(B) the tub
(C) the washbasin
(D) the shower

14. En caso de una enfermedad, ¿no sería mejor que uno consulte con ...

(A) the medic?
(B) the physician?
(C) the nurse?
(D) the witchdoctor?

15. Diez más tres son ...

(A) thirty
(B) three
(C) thirteen
(D) thrice

16. En el país de la Argentina, las estaciones del año son al revés; por eso, ¿en que mes del ano hace mucho frio?

(A) February
(B) April
(C) September
(D) July

17. En la manaña cuando uno tiene hambre habrá ...

(A) breakfast
(B) lunch
(C) supper
(D) dinner

18. La persona que enseña en la escuela primaria se llama ...

(A) the master
(B) the teacher
(C) the professor
(D) the trainer

19. Un kilo de carne aproximará en inglés más o menos dos ...

(A) tons
(B) ounces
(C) pounds
(D) kilograms

20. Hablando de perros, se refiere a la hembra como ...

(A) a girl
(B) a female
(C) a male
(D) a bitch

TEST # 2 (cont.) : Vocabulary # 2

Observe las frases españolas escogiendo una de las cuatro palabras escrita en inglés que define la subrayada palabra española. Sombree entre paréntesis la letra correspondiente en su hoja de respuestas.

21. Personas adaptables:

(A) adjustable
(B) suitable
(C) easy-going
(D) regular

22. Declarar la fe de uno

(A) explain
(B) avouch
(C) prove
(D) renounce

23. Comer con gusto

(A) mustard
(B) disgust
(C) relish
(D) excess

24. Inesperada cancelación:

(A) postponement
(B) reduction
(C) continuation
(D) annulment

25. Una mirada advertida

(A) admonitory
(B) anxious
(C) imploring
(D) coquetish

26. Un bosque con sendas enredadas

(A) dense
(B) labyrinthine
(C) pathless
(D) laborious

27. Engaño demostrado

(A) guilt
(B) innocense
(C) deceit
(D) genious

28. Tardar su salida

(A) regret
(B) accept
(C) reject
(D) delay

29. El lenguaje o germanía de rufianes

(A) jargon
(B) plotting
(C) pay-off
(D) accent

30. Una suave brisa occidental (del oeste)

(A) western dust devil
(B) zephyr
(C) eastern breeze
(D) gust

TEST # 3 : Structural Usage

Conteste las preguntas o complete las oraciones españolas escogiendo una de las cuatro respuestas escrita en inglés. Sombree entre paréntesis la letra correspondiente en su hoja de respuestas.

31. ¿Qué debe uno decir si hay basura para tirar?

(A) Dispose her.
(B) Throw it.
(C) Dispose of it.
(D) Throw her away.

32. ¿Está Felipe en casa?

(A) Yes, is in house.
(B) No, no is in home.
(C) Yes, is at house.
(D) No, he isn't at home.

33. ¿A quién va a dar el regalo?

(A) I am going to give it to her.
(B) To him it I go to give.
(C) I am going to give to her it.
(D) I go to give it to him.

34. ¿Qué le gustaría que hiciera yo?

(A) I would that you should study.
(B) I would like for you to study.
(C) It would be pleasing that you might study.
(D) It would please me that you should study.

35. ¿Te gusta la casa?

(A) To me, it pleases me much.
(B) The house, she likes me a lot.
(C) I like the house very much.
(D) It is pleasing to me the house a lot.

36. Cuando a usted le falta dinero, ¿cómo lo diría en inglés?

(A) I don't have nothing of money.
(B) I don't have no money.
(C) No have money.
(D) I don't have any money.

37. La expresión no se moje! se dice en inglés ...

(A) Don't get wet!
(B) No wet yourself!
(C) Don't wet!
(D) No get wet!

38. ¿Cómo se llama ella?

(A) She is called the Chita.
(B) Her name is Chita.
(C) She is the Chita.
(D) She calls herself the Chita.

39. Indicando la casa de en frente, contra la suya se dice en inglés ...

(A) The house in front.
(B) The counter house.
(C) The opposing house.
(D) The opposit house.

40. Cuando un joven se quiere casar, ...

(A) He will marry himself.
(B) He will marry with his bride.
(C) He will marry himself with the bride.
(D) He will get married.

41. Donde se prohiba fumar debe colocarse un letrero que diga ...

(A) No smoking
(B) Prohibit yourself to smoke
(C) Don't smoke it.
(D) No smoke.

42. ¿Quiere escribirme una carta? Entonces, <u>escríbemela</u>.

(A) Write it me.
(B) Write it to me.
(C) Write to me it.
(D) It to me write.

43. "Juan tiene que estudiar", se traduce al inglés ...

(A) Juan has that to study.
(B) Juan had to study.
(C) Juan has to study.
(D) To study has Juan.

44. Para saber si un nino tiene hambre, sería bien preguntarle ...

(A) You are hungry?
(B) Are hungry you?
(C) Have you hungry?
(D) Are you hungry?

45. "¿Con quién vive su hermano?" es mejor traducida con cuál de las siguientes preguntas?

(A) With whom does your brother live?
(B) Who does your brother live with?
(C) With who lives your brother?
(D) Whom lives your brother with?

46. "Vamos a ir con Miguel" quiere decir en inglés ...

(A) We go with Miguel.
(B) Let's visit Miguel.
(C) We are going with Miguel.
(D) Let's go with Miguel.

47. La expresión equivalente del vocablo "ándele" es cual de las siguientes:

(A) Go to it!
(B) Get with it!
(C) Come on!
(D) Get up!

48. ¿Cuál de las siguientes expresiones es la más ofensiva en inglés?

(A) Go to the wicked mother.
(B) Go to the devil.
(C) Go to the bloody one.
(D) Go to hell.

49. ¿Cuál de las siguientes expresiones es la más brusca en inglés?

(A) My God!
(B) Son of a gun!
(C) Snake in the grass.
(D) Whoremonger.

50. ¿Cuál de las siguientes expresiones le parece la más santa?

(A) For goodness sake!
(B) May God bless you!
(C) In heaven's name!
(D) Upon my mother's grave!

TEST # 4 : Interpreting Academic Statements

Abajo, se encuentra un número de expresiones escritas en inglés académico que tienen significados específicos. Sombree entre paréntesis la letra correspondiente en su hoja de respuestas. Escoja la palabra que correctamente interpreta la oración académica observando la palabra clave subrayada.

51. "He was dismissed from his position" means:

(A) transferido
(B) suspendido
(C) despedido
(D) disminuido

52. "He has a certain nostalgia for his homeland" means:

(A) noticia
(B) noción
(C) recuerdo
(D) añoranza

53. "That is a genetic trait" means:

(A) heredado
(B) semejante
(C) generado
(D) genérico

54. "That is not a feasible solution" means:

(A) buena
(B) practicable
(C) razonable
(D) sensata

55. "All of the alternatives are equally distasteful" means:

(A) impracticas
(B) sabrosas
(C) desagradables
(D) distintas

56. "The inclusion of this person would be an asset to any gathering" means:

(A) complemento
(B) obligación
(C) problema
(D) ventaja

57. "That action would have serious repercussions" means:

(A) consecuencias
(B) complicaciones
(C) alternativas
(D) objetivos

58. "He repeatedly refused to comply" means:

(A) contestar
(B) obedecer
(C) responder
(D) conceder

59. "It is not without regret that I must terminate your employment" means:

(A) terminar sin pena
(B) posponer con pena
(C) despedir con pena
(D) exponer sin pena

60. "The veracity of the statement could not be determined" means:

(A) sentido
(B) propósito
(C) inverosímil
(D) verdad

TEST # 5 : Signs and Sequences

Esta prueba requiere un buen sentido de sguir instrucciones. Escoja la secuencia apropiada de señales, símbolos y números según las instrucciones escritas en inglés sombreando entre paréntesis la letra correspondiente en su hoja de respuestas.

61. Select the answer which contains the following figures: $ # ¿ *

(A) $ # ¿ *
(B) $ # * ¿
(C) # $ ¿ *
(D) * $ ¿ $

62. Select an answer which contains a percent sign, two dollar signs and an asterisk.

(A) $ * * %
(B) % $ $ *
(C) % # # *
(D) $ % % *

63. Select the answer which contains a dash before a slash followed by a slash before a dash.

(A) / -- /
(B) -- / -- /
(C) -- / / --
(D) / -- / --

64. Starting with the symbol at the extreme left of $ # % " ¢ and then counting five figures to the right you would find:

(A) *
(B) #
(C) +
(D) ¢

65. Count the number of signs # % ¢ " @ Subtract four from this number selecting the remainder below.

(A) 1
(B) 3
(C) 2
(D) 5

66. Which set of numbers represents an increasing numerical order?

(A) 4,3,2,1
(B) 1,2,3,4
(C) 3,1,4,2
(D) 1,4,2,3

67. Which set of numbers represents a decreasing numerical order?

(A) 1,2,3,4
(B) 3,6,9,12
(C) 8,6,9,12
(D) 6,8,4,2

68. Select the set of asterisks (stars) which is equal to an odd number.

(A) * * * *
(B) * * * * * *
(C) * *
(D) * * * * *

69. The following is a set of seven slashes / / / / / / / By crossing the smallest even number there would remain:

(A) / / ~~/~~ ~~/~~ / / /
(B) ~~/~~ ~~/~~ ~~/~~ / / / /
(C) / / / ~~/~~ ~~/~~ ~~/~~ ~~/~~
(D) / ~~/~~ / / / / /

70. Which would be a corresponding alphabetical arrangement to the following numbers? (2, 4, 6, 8, 10)

(A) A, B, C, D, E
(B) B, D, F, H, J
(C) E, D, C, B, A
(D) A, C, E, G, I

TEST # 6A : Reading Comprehension

El siguiente pasaje es semejante a ellos que se encuentra en cualquier texto. Lealo con cuidado y luego de vuelta a la siguiente pagina. Escoja la respuesta correcta que esta basada en el pasaje sombreando entre parentesis la letra correspondiente en su hoja de respuestas.

BLOOD STRUCTURE AND FUNCTION

Red Blood cells, or erythrocytes, contain no nuclei and are produced by larger cells called erythroblasts located in the marrow of long bones. Hemoglobin in red blood cells combines with oxygen in the lungs and releases oxygen to the body cells.

There are several types of white blood cells, some of which function to destroy invading germs. Other white blood cells produce antibodies which defend the body against certain parasitic invaders. In comparison to red blood cells, some white blood cells are smaller and some are larger.

There is a great variation in human blood such that each individual has his own unique combination of blood chemicals. For instance, blood groups A, B, AB, and O are based on the presence or absence of two such blood chemicals. People with type A have one specific protein in their red blood cells while members of group B have a different protein. Type AB blood has both of these proteins and type O has neither. Similarly, each individual is a member of a blood group termed Rh-positive or Rh-negative.

Blood is carried away from the heart by arteries and returns to the heart through veins. Arteries and veins are connected by a complex network of capillaries.

Blood functions to aid the life process in a number of ways. It furnishes the body with nourishment by absorbing digested food in the intestines and transporting it to all cells in the body. Oxygen is carried to all parts of the body by the blood, and it also carries waste materials from the body to the lungs and kidneys. In addition to defending the body against invasion by harmful bacteria, the blood also regulates body heat and water content, and functions to maintain a constant internal environment which is necessary for body cells to survive.

TEST 6B : Informational Recall

Abajo, encontrará diez (10) oraciones basadas en el pasaje de la página anterior tocante a la estructura y función de la sangre. Escogiendo la respuesta correcta, sombree entre parentesis la letra correspondiente en su hoja de respuestas.

71. Las celulas rojas son producidas por celulas más grandes llamadas:

(A) erythrocytes
(B) marrow
(C) erythroblasts
(D) hemoglobin

72. El oxígeno es transportado a todas partes del cuerpo por medio de:

(A) white blood cells
(B) protein
(C) capillaries
(D) hemoglobin

73. La sangre es conducida al corazón por vía de:

(A) veins
(B) arteries
(C) capillaries
(D) erythrocytes

74. Otro nombre para las celulas rojas es:

(A) leucocytes
(B) erythrocytes
(C) hemoglobin
(D) carbohydrates

75. La sangre lleva material deshecho del cuerpo a:

(A) the liver
(B) the heart
(C) the lungs
(D) the stomach

76. Los cuatro tipos de sangre son:

(A) A,B,C,D
(B) AB,BA,O,AO
(C) A,B,C,AB
(D) A,B,AB,O

77. Los tipos de sangre son determinados por la presencia o ausencia de:

(A) proteins
(B) blood cells
(C) Rh-factors
(D) carbohydrates

78. La sangre ayuda para mantener una constancia interna de:

(A) temperature
(B) environment
(C) humidity
(D) respiration

79. Las celulas de la sangre que varían en tamaño son:

(A) erythrocytes
(B) red blood cells
(C) white blood cells
(D) erythroblasts

80. La sangre absorbe comida dirigida en:

(A) the capillaries
(B) the stomach
(C) the liver
(D) the intestines

EILEU

NUM. ____

EXAM FOR IDENTIFYING LIMITED ENGLISH USAGE
E.P.B.
HOJA DE RESPUESTAS

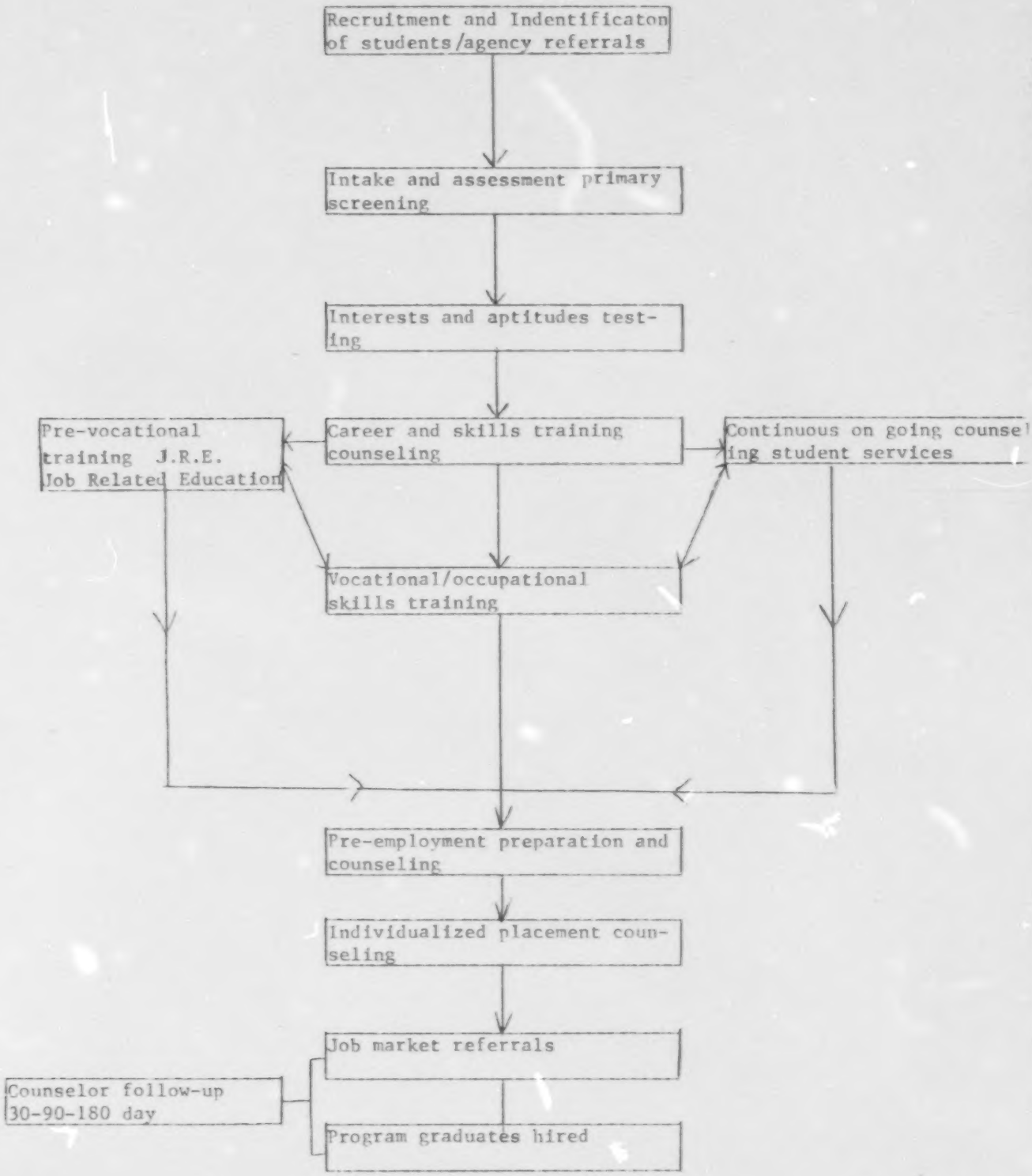
NOMBRE:_____ FECHA:_____ EDAD:_____ NACIONALIDAD:_____

DOMICILIO:_____ IDIOMA: 1. _____ 2._____ SEXO:___

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1.	( )	( )	( )	( )	26.	( )	( )	( )	( )	51.	( )	( )	( )	( )	76.	( )	( )	( )	( )
2.	( )	( )	( )	( )	27.	( )	( )	( )	( )	52.	( )	( )	( )	( )	77.	( )	( )	( )	( )
3.	( )	( )	( )	( )	28.	( )	( )	( )	( )	53.	( )	( )	( )	( )	78.	( )	( )	( )	( )
4.	( )	( )	( )	( )	29.	( )	( )	( )	( )	54.	( )	( )	( )	( )	79.	( )	( )	( )	( )
5.	( )	( )	( )	( )	30	( )	( )	( )	( )	55.	( )	( )	( )	( )	80.	( )	( )	( )	( )
6.	( )	( )	( )	( )	31.	( )	( )	( )	( )	56.	( )	( )	( )	( )	81.	( )	( )	( )	( )
7.	( )	( )	( )	( )	32.	( )	( )	( )	( )	57.	( )	( )	( )	( )	82.	( )	( )	( )	( )
8.	( )	( )	( )	( )	33.	( )	( )	( )	( )	58.	( )	( )	( )	( )	83.	( )	( )	( )	( )
9.	( )	( )	( )	( )	34.	( )	( )	( )	( )	59.	( )	( )	( )	( )	84.	( )	( )	( )	( )
10.	( )	( )	( )	( )	35.	( )	( )	( )	( )	60.	( )	( )	( )	( )	85.	( )	( )	( )	( )
11.	( )	( )	( )	( )	36.	( )	( )	( )	( )	61.	( )	( )	( )	( )	86.	( )	( )	( )	( )
12.	( )	( )	( )	( )	37.	( )	( )	( )	( )	62.	( )	( )	( )	( )	87.	( )	( )	( )	( )
13.	( )	( )	( )	( )	38.	( )	( )	( )	( )	63.	( )	( )	( )	( )	88.	( )	( )	( )	( )
14.	( )	( )	( )	( )	39.	( )	( )	( )	( )	64.	( )	( )	( )	( )	89.	( )	( )	( )	( )
15.	( )	( )	( )	( )	40.	( )	( )	( )	( )	65.	( )	( )	( )	( )	90.	( )	( )	( )	( )
16.	( )	( )	( )	( )	41.	( )	( )	( )	( )	66.	( )	( )	( )	( )	91.	( )	( )	( )	( )
17.	( )	( )	( )	( )	42.	( )	( )	( )	( )	67.	( )	( )	( )	( )	92.	( )	( )	( )	( )
18.	( )	( )	( )	( )	43.	( )	( )	( )	( )	68.	( )	( )	( )	( )	93.	( )	( )	( )	( )
19	( )	( )	( )	( )	44.	( )	( )	( )	( )	69.	( )	( )	( )	( )	94.	( )	( )	( )	( )
20.	( )	( )	( )	( )	45.	( )	( )	( )	( )	70.	( )	( )	( )	( )	95.	( )	( )	( )	( )
21.	( )	( )	( )	( )	46.	( )	( )	( )	( )	71.	( )	( )	( )	( )	96.	( )	( )	( )	( )
22.	( )	( )	( )	( )	47.	( )	( )	( )	( )	72.	( )	( )	( )	( )	97.	( )	( )	( )	( )
23.	( )	( )	( )	( )	48.	( )	( )	( )	( )	73.	( )	( )	( )	( )	98.	( )	( )	( )	( )
24.	( )	( )	( )	( )	49.	( )	( )	( )	( )	74.	( )	( )	( )	( )	99.	( )	( )	( )	( )
25	( )	( )	( )	( )	50.	( )	( )	( )	( )	75	( )	( )	( )	( )	100.	( )	( )	( )	( )

FIG. 1

SKILLS CENTER
STUDENTS FLOW AND INSTITUATIONAL MODEL



AN EVALUATION OF THE EL PASO COMMUNITY COLLEGE - BILINGUAL SKILLS CENTER

April 2, 1976

This report is a result of a letter contact by Mr. Ruben Ochoa, Director of the El Paso Community College - Bilingual Skills Center, calling for a consultation of a two-day on-site visit, on March 4 and 5, and a return one-day visit for submission of conclusions and recommendations, on April 2, 1976. The on-site visit consisted of a tour of the main campus and other training sites, including the Skills Center complex on Yandell. Interviews were conducted with the director, counselor, curriculum developer, instructors, and several students. A telephone conversation was held with the Associate Dean of Occupational Education, and an iniormal conversation was held with the Texas Education Agency representative. The on-site visit gave the consultant a cursory view of the Skills Center operation.

This report is intended to point out those positive factors that enhance the Skills Center and those that could be used more effectively for the continued improvement in carrying out the goals and purposes of the Skills Center. It cites areas that, in the consultant's opinion, need attention in order to improve the effectiveness of the services to the Skills Center clients. In addition, this report points out several areas, to be considered in long-range planning, that could enhance the continued development and growth of the Skills Center. It is the intent of this report to cover areas of significant concern, either expressed or observed, but it cannot and does not deal with all aspects of concern.

There are several notable positive factors that strengthen the Skills Center concept as a viable training alternative. It currently fills an otherwise unmet "training for employment" need identified in the El Paso community by

several surveys and advisory committees. The growth potential for the Center, based on documented need, is unlimited. As an integral part of the Community College, the Skills Center derives many excellent services, such as purchasing, financial accounting, facility maintenance, and personnel/payroll processing. It also derives some benefit from the Counseling and Developmental Studies departments. The Skills Center is exceptionally well equipped in all training areas, with up-to-date equipment. The program has elements of flexibility of operation which are necessary and its student clients are motivated to maximize their training opportunities within their individual limitations. Of course, the Center's greatest resource is its industrious, dedicated, hardworking staff. Each staff member has something unique to offer to the total effort.

It is recognized, however, that several factors also have contributed to limiting the Center's effectiveness:

1. This is the first year of operation and the program has had to make rapid adjustment with little opportunity for effective planning. The second year's proposal should have incorporated procedural changes learned in the first year of operation. The Bilingual/Vocational grant, the main source of funding for the Skills Center, requires recruiting and selecting clients of limited English backgrounds and developing a program design to meet their academic and vocational training needs to prepare them to enter and advance in occupations, using parallel courses in Spanish to achieve this goal. The consultant interprets this to be the institution's main objective. However, it is recognized that all aspects of this requirements are not being met. Utilizing bilingual staff and translating materials partially fulfill this requirement, but long-range development of this concept needs to be formulated. It is evident that the basic philosophy is incorporated in the proposal; however, follow-through has been slow because of procedural problems encountered during the implementation phases. It is the writer's contention that, if the attached model (Figure 1) is followed without exception and the identified component sequences are fully developed, the requirements of the program will be met.

   Consideration has to be given so that clients screened for occupational training have a "chance" of being employed. Therefore, a

screening procedure and admissions policy that includes assessment of interests and skills has to be established and be adhered to. The development of a trainee flow-through process, with defined behaviorial objectives, is essential in moving clients from one component to another--intake, assessment, basic skills, vocational training, placement. Each enrollee should be given an opportunity to progress through the program individually, at his own pace. This process would require implementation of an open-entry/open-exit program. Each enrollee would have an individually prescribed educational development plan (EDP). This process has been proven most effective because it supports the accepted learning theory that learners possess individual differences and should be taught accordingly. An open-entry/open-exit design forces the instructor to develop objective criteria to effectively monitor the trainee's progress. It also allows the trainee to use his time more effectively between language development, basic education skills and vocational training. It is the opinion of the writer that this explanation was, at best, a "tease effort" to the concept of individualized instruction and that it requires much more planning and development than is possible in this report. It is recommended that serious consideration be given to its development as a long range project. The effective use of the curriculum developer could greatly enhance this development process and provide a valuable contribution to disseminating a model, as required by the contract.

2. Since the Skills Center is patterned under the community college format, several questions are raised and some possible alternatives offered as to the advantages or disadvantages of close ties with the community college. In some respects, the close ties to the community college's policies and procedures restrict the flexibility needed and affects the autonomy needed by the Skills Center to serve its clients.

   There exist excellent linkages with some college departments; however, three (3) department linkages should definitely be expanded--Counseling, Developmental Education and the Library-Audio-Visual Center. These departments have many resources to offer to the Skills Center and its clients. A placement component and more clerical support to the Skills Center staff should also be provided. If regular staff cannot be provided, several alternatives such as work-study, TEC personnel, or Public Service Employment slots should be investigated. The Community College Placement Unit should be made available for Skills Center trainees.

   In some respects the community college structure may be cumbersome to the effective operation of the Skills Center in meeting its commitment. The Skills Center client, being different from the

college student, requires a program without a semester-credit course structure. It is recommended that the credit requirement be eliminated and that those Skills Center enrollees wishing to continue at the college at a later date be given a "test-out" credit where applicable within the college program.

The Skills Center needs some funding permanency, other than grant monies. It is recommended that the college establish a fund, at approximately twenty percent (20%) of grant monies generated, to establish permanency, particularly during grant uncertainty periods. This insures staff and clients of program continuation. This uncertainty of continuity adversely affects morale and productivity of both staff and students.

Concern was expressed over the decision making process. There seems to be a lack of understanding as to whether the director has the authority, or uses the authority he does have, to make necessary and timely decisions. It is recommended that the Center Director and the Associate Dean determine these areas of responsibility to expedite timely and effective solutions to problems and develop a problem-solving plan of action to the extent possible.

It is recognized that the Center Director has many responsibilities, even outside the realm of the Skills Center operation, and is not always available to make timely procedural or programmatic decisions. It is, therefore, recommended that a set of operating policies and procedures be developed, either through management or by a committee of staff and students, to resolve these sometimes minute frustrations.

3. It is recognized that space is at a premium and that Skills Center classes are overcrowded with no space to expand. Also, Skills Center classes away from the Yandell location have to be accommodated around other college program schedules. It would be most desirable to acquire a facility that could house the Skills Center in one location for all of its programs and give the Skills Center client an opportunity equal to other enrollees.

Although time and scope limitations preclude indepth discussion, there were other concerns expressed, or observed, which warrant mention. The recommendations which follow are offered as a result of comments and observations. These recommendations are, by necessity, brief and cannot be fully developed in this report. They are offered as items for continued study and implementation.

1. Schedule regular staff meetings and with definite objectives established for each meeting.

2. Establish priorities, with timetables, and ensure that staff is aware of these.

3. Establish a formal mechanism to share ideas and exchange problems and concerns among staff.

4. Develop plan of action formats for program segment designs, with individual instructors responsible for respective program segments and the Curriculum Developer responsible for coordinating overall curriculum.

5. Formalize student intake, initial assessment and progress monitoring techniques, with a formal progress monitoring system in all courses/classes.

6. Define roles and explore role expectations as a sensitizing effort for staff to better understand each other's needs and functions.

7. Clarify lines of authority and responsibility to/for all staff.

8. Utilize staff resources to the maximum by developing a system whereby staff can utilize each other's expertise.

9. Strengthen staff commitment and enthusiasm by recognizing work and effort expended.

10. Provide opportunity for enrollees and staff to participate in meaningful continued evaluation of program and decision making.

11. Strengthen client recruitment effort by developing and adhering to criteria; seek screening cooperation from other agencies involved in human development services.

12. Provide an ESL and GED program in conjunction with the language development needs for vocational enrolles. ESL and GED for non-vocational students should be conducted separately.

13. Formalize and use the job preparedness scale as designed by curriculum development, "Student Performance Rating Scale," (Figure 2).

14. Establish identifiable step-off levels in vocational training courses so that enrollees who cannot complete the total program could become employable at a step-off level by identifying specific skills required at each level.

15. Provide inservice training for instructors who do not have formal teaching backgrounds.

It is the intent of this report to be critical only to be constructive and to produce positive thinking in relation to the Skills Center current operation and its continued expansion and improvement. Each one of the classes visited had evidence of extremely positive and effective learning processes being utilized and much worthwhile learning taking place. Each person interviewed shared many positive comments and expressed satisfaction with his or her involvement in the Skills Center effort.

The Skills Center at present is a tremendously ambitious and progressive effort. All staff and clients are to be commended for their contributions to its success.

Please extend my thanks to all the staff and other participants for their cooperation and hospitality. It was indeed a pleasure to have had the privilege of this involvement.

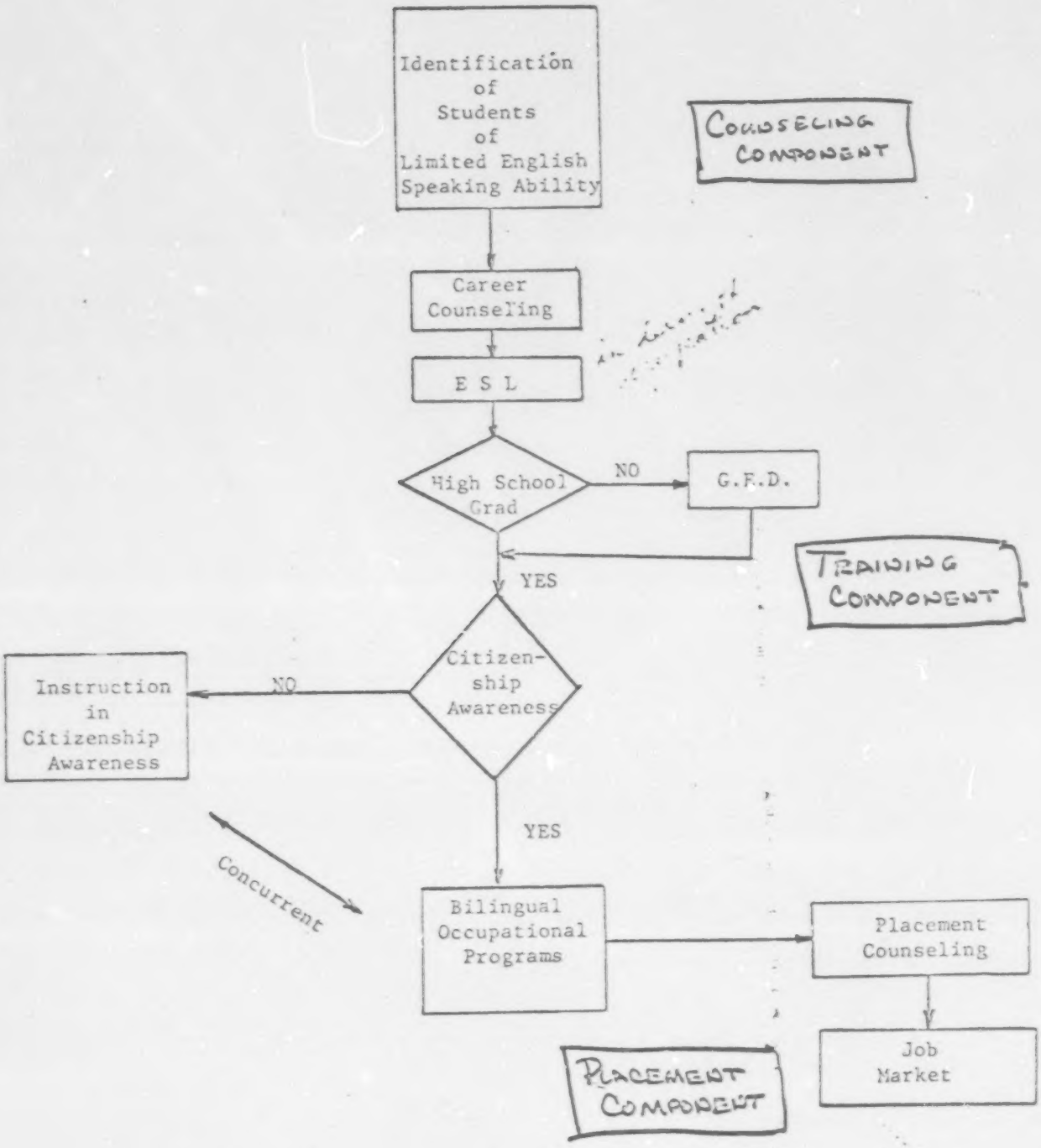
Respectfully submitted,

H. Felix Vigil

H. Felix Vigil

FIGURE 1.

INSTRUCTIONAL MODEL



Adapted

for

E.P.C.C. Skills Center

Student Performance Rating Scale

by

Edwin P. Bowden

Below you will find a list of behavioral objectives that should characterize a student's performance in the EPCC Skills Program. The S-C staff will please rate each behavior as it applies to the particular student by writing in the corresponding rating number in the blank to the left of each statement. Use the following criteria for your ratings:

RATING:	Applies when that behavior occurs:
7	ALWAYS
6	ALMOST ALWAYS
5	VERY FREQUENTLY
4	OFTEN
3	OCCASIONALLY
2	RARELY
1	NEVER

Make a decision on each item individually. Do not hesitate to use extreme ratings if warranted. It is necessary to have a frank and objective evaluation of the student.

There is a total of 36 statements in reference to student rating. The 36 statements are worded so as to reflect Responsibility (R), Cooperation (C), and Motivation (M). The RCM rating is determined by placing the appropriate number of each behavior in the space provided. The kind of statement will be indicated by the RCM letter.

****

Student's Name: _____

Evaluator's Name: _____

Evaluator's Position: _____

Rating Cycle: From _____ To _____

(It is recommended that the student receive an accumulative score of 144 points as a mean for a favorable recommendation.)

EXPLANATION OF SCALE FACTORS

Responsibility: This includes responsible behavior directed toward successful student participation. It means helping the S-C staff to carry out the objectives of the program directed toward areas of student development. Student behavior will be rated as it relates to faculty, staff, and academic responsibility. All behavioral patterns instrumental in the participant's successful accommodation to the life style of a student are included here. They are all program related patterns of behavior such as: study habits, punctuality, responsiveness to instruction, and diligence in the skill area extending to care of tools, equipment and materials to include personal and school property.

Cooperation: Cooperative behavior relates to personal characteristics of the student, i.e. to the degree to which the person is able to get along with faculty, staff and peers. Behavior reflecting emotional adjustment, friendliness, willingness to get along, attitudes and general disposition toward others is included here. Cooperation reflects a positive attitude of the student in relation to his weaknesses as well as his strengths.

Motivation: Behavior included here is related to the degree to which the S-C participant is interested and involved in becoming a skilled worker. The degree to which his development is important to him and his willingness to work on deficiencies in predetermined areas for development is a main consideration under motivation. All behavior reflecting interest, dedication, and extra effort is significant here.

M ____ 1. Seems interested in the program and speaks enthusiastically about it.

C ____ 2. Is fair in dealing with others.

R ____ 3. Is reliable in executing assigned tasks.

C ____ 4. Treats peers courteously.

R ____ 5. Is decisive in class participation.

R ____ 6. Attends classes regularly and is on time.

M ____ 7. Shows interest in the program by seeking additional information.

C ____ 8. Shows attention, consideration and courtesy toward the director, instructors, and staff.

R ____ 9. Is neat and orderly in his/her work.

C ____ 10. Avoids negative comments about the program.

M ____ 11. Can go ahead with work without being told.

M ____ 12. Shows satisfaction and pride in work well done.

C ____ 13. Accepts supervision from instructors even if he/she has had some experience in what is being done.

C ____ 14. Is willing to change old methods of doing things when a new way is demonstrated or expected.

R ____ 15. Organizes and plans his/her work carefully.

M ____ 16. Wins the cooperation of others.

M ____ 17. Asks questions and seeks information related to work and the vocation.

M ____ 18. Follows instructions given by the instructor.

M ____ 19. Is willing to do more than the minimum requirements.

C ____ 20. Avoids ugly gestures, shoulder shrugs, or other signs of displeasure when asked a question or to do something.

C ____ 21. Speaks politely and shows consideration for fellow students.

R ____ 22. Plans well but lacks "snap" in getting things done.

M ____ 23. Asks meaningful questions directed toward relevant points while in class.

R ____ 24. Accepts difficult assignments without complaint.

R ____ 25. Avoids gossip about peers, instructors or staff.

C ____26. Tries to communicate with others in a meaningful, reasonable fashion.

M ____27. Self-motivated to do work without prodding.

M ____28. Attends extra activities (when available) pertaining to the E.P.C.C. Skills Center program.

M ____29. Seems to feel there is much to be learned from instructors.

R ____30. Attends obligations and appointments punctually (promptness, similar to # 6).

R ____31. Completes tasks efficiently and on schedule.

C ____32. Accepts suggestions for self-professional improvement.

R ____33. Acts with forethought (is not impulsive).

R ____34. Takes care of personal appearance.

C ____35. Is able to work effectively with others.

C ____36. Participates actively in group sessions.

PAGES 87 THROUGH 103 CONTAINING INFORMATION ABOUT PROGRAM PARTICIPANTS WERE REMOVED FORM THIS DOCUMENT PRIOR TO ITS BEING SUBMITTED TO THE ERIC DOCUMENT REPORDUCTION SERVICE.

CE 009 670

ACCESSION NUMBER: VT103588

PUBLICATION DATE: 76

TITLE: OCCUPATIONAL EDUCATION PROGRAM ARTICULATION BETWEEN SECONDARY VOCATIONAL EDUCATION CENTERS AND GREENVILLE TECHNICAL COLLEGE. FINAL PROGRAM PERFORMANCE REPORT.

DESCRIPTOR: CAREER EDUCATION; VOCATIONAL EDUCATION; OCCUPATIONAL GUIDANCE; *VOCATIONAL SCHOOLS; TECHNICAL EDUCATION; HIGH SCHOOL STUDENTS; TECHNICAL INSTITUTES; *POST SECONDARY EDUCATION; *ARTICULATION (PROGRAM); INDUSTRIAL EDUCATION; ENGINEERING GRAPHICS; TRADE AND INDUSTRIAL EDUCATION; *SECONDARY EDUCATION

IDENTIFIER: GREENVILLE COUNTY SCHOOL SYSTEM; SOUTH CAROLINA

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 123P.

ABSTRACT: THE OCCUPATIONAL EDUCATION PROGRAM ARTICULATION PROJECT WAS DESIGNED TO DEVELOP POLICIES AND PROCEDURES WHICH WOULD FACILITATE STUDENT MOVEMENT FROM A LOCAL SCHOOL SYSTEM (GREENVILLE COUNTY SCHOOL SYSTEM) TO A TECHNICAL COLLEGE (GREENVILLE TECHNICAL COLLEGE). THESE POLICIES AND PROCEDURES APPLY TO THREE INDUSTRIAL ARTS CURRICULUM AREAS: MACHINE SHOP, INDUSTRIAL ELECTRICITY, AND ENGINEERING GRAPHICS. THIS FINAL PROGRESS REPORT FOCUSES ON PROJECT ACCOMPLISHMENTS, MAJOR ACTIVITIES AND EVENTS, PROBLEMS, PUBLICITY ACTIVITIES, DISSEMINATION ACTIVITIES, EVALUATION PLANS AND PROCEDURES, AND STAFF DEVELOPMENT PROCEDURES. THE OVERALL ACCOMPLISHMENTS OF THE PROJECT WERE THE DEVELOPMENT OF SEQUENTIAL BEHAVIORAL OBJECTIVES; ADJUSTMENT OF CLASSROOM ACTIVITIES TO CONFORM TO COMPETENCY-BASED PLACEMENT PROGRAM; AND BROADENING OF COUNSELOR INFORMATION AND SKILLS IN THE IMPLEMENTATION OF ARTICULATION PROCEDURES. ACTIVITIES AND EVENTS WHICH LEAD TO THOSE ACCOMPLISHMENTS INCLUDE TUITION SCHOLARSHIPS, GUIDANCE FORMS, TEACHER VISITATIONS, AND COUNSELOR WORKSHOPS. THE PROJECT WAS NOT COMPLETED IN THE FISCAL YEAR THAT IT WAS FUNDED. FOR THAT AND OTHER REASONS FORMAL EVALUATION IS NOT AVAILABLE. TWO APPROACHES ARE ALSO INCLUDED IN THIS REPORT. APPENDIX A INCLUDES EXAMPLES OF PUBLICITY ACTIVITIES; APPENDIX B INCLUDES THREE PROGRAM BOOKLETS (ONE FOR EACH CURRICULUM AREA) WHICH PROVIDE INFORMATION ON THE ARTICULATION PROCESS. (TM)

CONTRACT NUMBER: G00-75-00453

INSTITUTION NAME: GREENVILLE TECHNICAL COLL., S.C.

SPONSORING AGENCY NAME: OFFICE OF EDUCATION (DHEW), WASHINGTON, D.C.

VT 103 588

BEST COPY AVAILABLE

OCT 21 1976

Project No.: 498Ah50303 Grant No.: GOO-75-00453

Grantee Organization: Office of Education

Period Covered: July 1, 1975 to September 30, 1976

Project Director: Clifford L. Shisler

OCCUPATIONAL EDUCATION PROGRAM ARTICULATION BETWEEN SECONDARY VOCATIONAL EDUCATION CENTERS AND GREENVILLE TECHNICAL COLLEGE

Final Program Performance Report

VT 103 588

TABLE OF CONTENTS

	-page-
Accomplishments	1
Major Activities and Evants	3
Problems	4
Publicity Activities	5
Dissemination Activities	5
Progress on Data Collection and Evaluation Plans and Procedures	5
Other Activities (not applicable)	6
Staff Employment and Utilization (not applicable)	6
Staff Development	7
Appendices	8

ACCOMPLISHMENTS

The overall accomplishment of the Occupational Education Program Articulation Project was the development of comprehensive articulation policies and procedures in three instructional areas common to Greenville Technical College and the Greenville County School System. The areas were Machine Tool Technology-Machine Shop, Engineering Graphics Technology-Drafting, and Industrial Electricity-Electricity.

The attainment of the articulation policies and procedures was facilitated by the following:

Statement of compatible and sequential behavioral objectives by both secondary and post-secondary instructors

Adjustment of classroom evaluation techniques to conform to a competency-based placement program

Broadening of counselor information and skills in the implementation of articulation procedures

The Articulation Project was funded for FY-76 and a three month extension (July 1-September 30, 1976).

The status of the grant activities is explained in the following narrative.

Specific performance objectives were developed for three occupational training programs to replace credit and clock-hour requirements. (Included in the appendices of this report are Program Articulation Booklets which contain copies of performance objectives.) The objectives for the Machine Tool Technology program were specified through the South Carolina State Department of Education Career Cluster Project.

The Career Cluster Project provides objectives, materials, and evaluation methods whose usage is required of the area vocational centers. Vocational center and Greenville TEC instructors specified performance objectives for the Industrial Electricity and Engineering Graphics Technology Programs.

Procedures were adopted to allow advanced placement of vocational center students in post-secondary programs. Following the specification of program objectives, instruments to rate student skills were constructed. The Engineering Graphics Technology program will be using a "Skills Proficiency Rating Form" and the Machine Tool Technology Program will use a "Machine Shop Transcript Evaluation Form." Each of the three programs uses a placement exam. (The Industrial Electricity Program uses a competency exam exclusively to determine advanced placement.)

Effective advanced placement is a bilateral decision. The institution must determine a student's compentencies and prescribe appropriate instruction. The student must also feel confident of his abilities and of the placement. Students have the option of requesting lower program placement. Counselors encourage students, however, not to choose an entry level lower than the one prescribed.

The vocational centers and Greenville TEC programs utilize advisory committees to ensure instructional compatibility with industrial reality. These committees advise on the specification of curricula, selection of equipment and instruction of new methodologies. The committees also make certain that training practices are commensurate to industrial needs.

Special Articulation Project Committees were established early in the project funding period. Committee membership was composed of counselors, instructors, program administrators, community representatives, and project staff. The varied membership

provided effective constructive criticism of project activities and commitment to the implementation of the project.

Program Completion Requirements were based on graduation standards established by the State Board for Comprehensive and Technical Education and skills levels demanded by employers. The principal goal of the technical college and the vocational centers is to provide opportunities for individuals to enter the labor market with maximum skills.

An integral function of the articulation process was the regularly scheduled meetings of technical college and vocational school instructors. Instructors were able to discuss common goals and frustrations, share teaching methodologies, and become generally more informed about each other's programs.

MAJOR ACTIVITIES AND EVENTS

The major activities and events of the project are described below.

Tuition Scholarships--Greenville TEC established a tuition scholarship for the three departments of each vocational center involved in the project. The ten scholarships are awarded each June and provide one quarter of free tuition. The scholarships are renewable for one quarter after the student's work is satisfactorily reviewed by his college department faculty.

Guidance Information Form--This form was developed to provide feedback to the College and vocational center counselors on the progress of articulated students.

Teacher Visitations--Instructors in the drafting and engineering graphics programs exchanged teaching positions for one day. This exchange facilitated understanding

of the particular instructional needs of each program level.

Counselor's Workshop--Project Staff coordinated a September workshop for Greenville TEC and vocational center counselors. The workshop allowed counselor to "walk through" the program. Program administrators presented synopses of the articulation process as it applied to their instructional areas. Vocational center instructors were given information and materials to use in advising their students.

PROBLEMS

The project was not completed within the fiscal year for which it was funded. At the end of June, four activities remained unfinished. These activities were the validation of the Industrial Electricity Articulation Test, the completion of the counselor training program, the establishment of a testing center to handle placement exams, and the dissemination of developed materials.

The Industrial Electricity Articulation exam was validated during the late summer. Test items were matched with program objectives and difficulty and discrimination indices calculated for each item. A college testing center has not been established. The lack of these facilities, however, has not inhibited the program. The counselor training workshop and procedures for dissemination of materials are explained elsewhere in this report.

Fall 1976, was the first quarter the articulation process had been used to place students in instructional programs. Although comprehensive evaluation of the program is premature, the program does appear to have the necessary mechanisms to support efficient placement of students. The program needs to become more widely accepted, but this acceptance will be a function of time as the participants become more

comfortable with the process.

PUBLICITY ACTIVITIES

Included in the appendices are four articles which were published by the Greenville TEC "in-house" newspaper, "Tectonics". The "Tectonics" circulation includes all full and part-time instructors and administrators and officials of forty other institutions throughout the country. Two newspaper articles were published to promote the program. These articles, also included in the appendices, were announcements of scholarship awards.

DISSEMINATION ACTIVITIES

Copies of the final report and the program articulation booklets will be sent to the ERIC Clearinghouse for Junior Colleges, the Center for Vocational Education (Ohio State University), the sixteen technical colleges of South Carolina, each vocational center in Greenville County, and the offices of the Greenville County School System. Additional copies will be printed and made available to any institution requesting materials.

PROGRESS ON DATA COLLECTION AND EVALUATION PLANS AND PROCEDURES

The Articulation Project was funded for one year only. The year was spent in the activities of initiating the project. The grant did not provide for a formal evaluation process, however, as the program is fully implemented it will be evaluated through the institutional research and program auditing function of the College.

This evaluation will be examining such program aspects as:

Are the levels of advanced placement appropriate for the student?

What is the effect of the articulation program on retention/attrition rates?

What is the efect of the program on length of study of vocational center graduates?

How do vocational center students compare with non-vocational center students on characteristics as academic success, job placement, and wage levels?

What are the attitudes of vocational center and college faculty toward the articulation process?

Greenville TEC hopes to answer these questions when the program enters its second and third years. The grant funded seed activities only and therefore, the College deems it more valuable to assess the effectiveness of the total program rather than the initiating activities.

OTHER ACTIVITIES

(not applicable)

STAFF EMPLOYMENT AND UTILIZATION

(not applicable)

STAFF DEVELOPMENT

The staff development activities which resulted from the accomplishment of the objectives of this grant are best described with respect to those groups served.

Instructors participated in all of the articulation program meetings and became involved in the design and implementation of the program. Instructors also worked individually with a curriculum specialist as they specified their instructional objectives and correlated test items with those objectives.

Counselors participated in the initial and final articulation program meetings. Efforts were made to increase the level of program information, to inform the counselors of the advantages of advanced placement, and to train them in the evaluation of student skills.

Appendix A

Publicity Activities

(TECTONICS, Vol. I, No. 6 Feb., 1976)

ARTICULATION GRANT ACTIVITIES

Progress is being made on the goals of the articulation grant. The grant is funding activities to improve articulation between Greenville TEC and the vocational education centers.

Recently DAVE TITUS, J. D. WARREN, OLIVER ROGERS, JANIE McPHERSON, and LARRY SANKEY met with guidance counselors and instructors from the vocational centers and HAROLD KAY of the Greenville County Schools.

The participants agreed on a policy of evaluation for machine technology students. Some of the objectives are based on the Career Cluster Project.

The student placement system will be evaluated four weeks after the quarter begins.

BILL BAILY, RANDY LUCAS, and BRUCE CARDALL are writing objectives in Industrial Electricity for the articulation project.

Engineering Graphics Technology instructors LES CARAWAY and WALTER RICE have met with the area vocational instructors and are coordinating objective writing in their departments.

ARTICULATION GRANT ACTIVITIES (TECTONICS, Vol. I, No. 4, Dec., 1975)

Greenville Tec has a grant to promote articulation and instructional agreements between Tec and the vocational high schools in the area. J. D. WARREN, LES CARAWAY, and SHIRLEY DENTON are coordinating most of the activities from the Tec end. The grant will be of mutual benefit to the schools concerned, but will help students the most. By agreeing on instructional objectives, the faculty at both schools will be able to place students into the Tec program at their skill level. Then students would not have to repeat material they had already learned. The grant is quite comprehensive and requires the involvement of administration, faculty, and counselors from both educational systems.

(TECTONICS, Volume I, No. 7, March 1976)

HAVE AN IDEA?

LES CARAWAY, WALTER RICE, and area vocational instructors are developing objectives for the articulation project. SHIRLEY DENTON is working with BRUCE CANDALL to write industrial electronic objectives.

ARTICULATION GRANT

(TECTONICS, Vol. I No. 8, April 1976)

Greenville Tec faculty continue to meet with instructors from the vocational education centers. On April 6, instructors from the various institutions met to review program and course objectives. A model for the process has been developed. The model depicts student progress through the system.

J. D. Warren has developed a slide-tape set for the Machine Tool Technology program. The program will be used by counselors with prospective students.

Thursday, June 10, 1976 Greenville Piedmont—

10 honored

Ten high school seniors from Greenville, selected as outstanding graduates of industrial and technical programs at area vocational centers, received scholarship awards from Greenville TEC in ceremonies last week.

The students were chosen by center directors and instructors as having "outstanding records in drafting, electricity and machine shop," J.D. Warren, chairman of the industrial careers division at TEC, said.

The awards, consisting of tuition of $50 for the first quarter of attendance at TEC, are renewable for a second quarter, contingent on the students' maintaining satisfactory progress as set by TEC.

Award recipients from Eneree Vocational Center include Jerry Matthews, Greg Stoudenmire and Kermit Shelton; from Foothills, James Liner, Ricky Pruitt and Warren Lewis Anderson; from Donaldson Center, Dennis Finch, Douglas Edward Jackson and Joel Ambrose; and from Wade Hampton High School, David Gaze.

Foothills School Students Get Scholarships

Three seniors at Foothills Vocational Center received scholarship awards from Greenville Technical College in ceremonies this week. J.D. Warren, second from left, chairman of the industrial careers division at Greenville TEC, made the presentations to James Liner, Greer, for drafting; Warren Lewis Anderson, Taylors, for machine shop; and Rickey Pruitt, Greenville, for electricity.

Appendix B

Program Booklets

MACHINE TOOL TECHNOLOGY ARTICULATION

Greenville Technical College GREENVILLE, SOUTH CAROLINA · 29606

The work upon which this publication is based was performed pursuant to Grant GOO-75-00453 with the U. S. Office of Education, Department of Health, Education, and Welfare.

The project presented or reported herein was performed pursuant to a Grant from the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education and no official endorsement by the U. S. Office of Education should be inferred.

TABLE OF CONTENTS

Overview. 1

Flow Chart. 2

Articulation Evaluation Procedure 3

Machine Shop Transcript Evaluation Form. 4, 5, 6

Sample of "Machine Shop Transcript" 7, 8

Tuition Scholarship 9

Guidance Information Form 10, 11

Machine Shop Units 12, 13, 14

Machine Shop Objectives . . . . . 15 - 35

MACHINE TOOL TECHNOLOGY

ARTICULATION GRANT

GREENVILLE TECHNICAL COLLEGE

JUNE, 1976

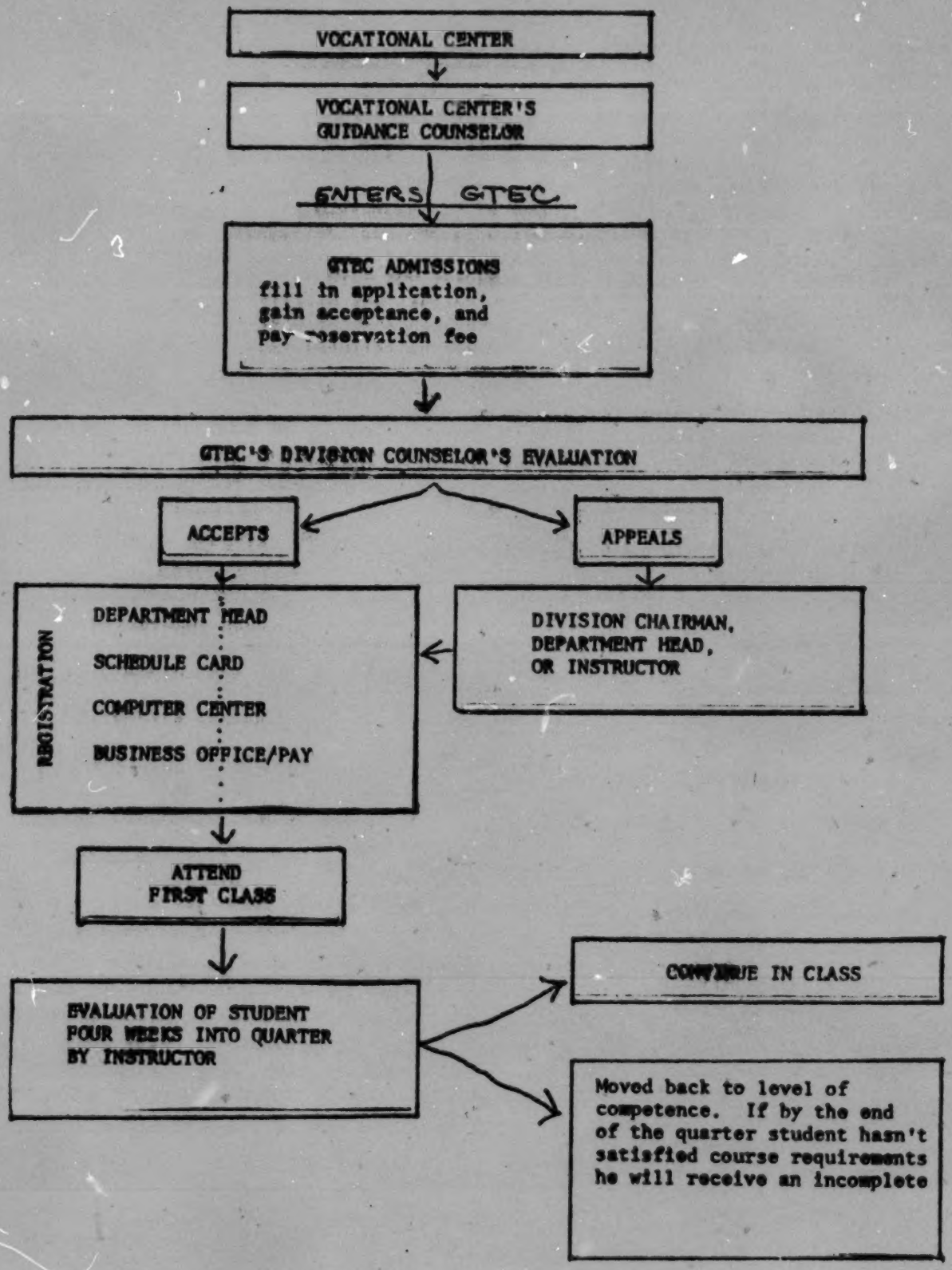
OVERVIEW

Evaluation for articulation into the Machine Tool Technology program at Greenville Technical College begins with the vocational student at his/her vocational center. The student should properly complete a release form in order to allow his/her "machine shop transcript" to be sent to the Industrial Division counselor at GTEC. This "transcript" should have been completed by the machine shop instructor at the center.

The GTEC guidance counselor will evaluate the "transcript" by the Machine Shop Transcript Evaluation Form. This form has a list of Career Cluster Project objectives that have been correlated to the machine shop courses at GTEC. Completion of objectives listed by each project within the four quarters of courses will be considered completion of that project at GTEC. A recommendation is made by the counselor for placement in the Machine Tool Technology program.

If the student disagrees with the counselor's recommendation and requests a higher placement, there is a detailed procedure for reviewing the evaluation by members of the Machine Tool Technology department. (See "Articulation Evaluation Procedure" in this booklet.) If the student requests a lower placement, his/her request will be honored at this time.

ARTICULATING MACHINE SHOP STUDENT FLOW CHART



ARTICULATION EVALUATION PROCEDURE

I. Entering Student Is Evaluated by GTEC Division Guidance Counselor with students signature for release

1. Yellow Card (MTT transcript)

II. Student Accepts- - o r - II. Student Appeals -

1. Registers for suggested quarter

1. Division Chairman, Department Head or Instructor will reevaluate student.

2. Deficiencies listed and closer evaluation given - decision reissued with counseling on its rational
   a. appeal denied - go to #3
   b. appeal accepted - go to #4

3. If appeal denied, student allowed to register for suggested MTT course

4. If appeal accepted, time expectancies on student's performance and quality determined and noted to him

5. At the end of 4 weeks the student must meet with the instructor involved to justify continuance based on performance of heretofore listed deficiencies and appropriate progress into the quarter's work

   a. If student's work acceptable, he continues through the quarter.
   b. If not acceptable, student will be moved back to his level of competency. If by the end of the quarter student hasn't satisfied course requirements, he will receive an incomplete.

III. Evaluation of Student, four weeks into quarter, by instructor to verify acceptable level of performance and appropriate initial evaluation

The evaluation instrument development by the South Carolina State Department of Education for the Cluster Project in the ARC funded program for Machine Shop has been included under Machine Tool Technology by courtesy of the South Carolina State Department of Education.

STUDENT'S NAME

DATE _____ PERIOD _____ MI

YOUR SCHOOL

RELEASE DATE

CONDITION OF RELEASE:

Completed course [ ] Dropped course [ ] Moved [ ] Other _____

MACHINE SHOP

TO BE COMPLETED ONLY BY THE RELEASING INSTRUCTOR

IMPORTANT: BECAUSE THIS RECORD WILL BE REVIEWED BY OTHER INSTRUCTORS IN VOCATIONAL HIGH SCHOOLS, AVC'S, AND TEC CENTERS AS A PRELUDE TO ALLOWING THIS STUDENT CREDIT TOWARDS THE COURSE IN THESE INSTITUTIONS, IT IS IMPERATIVE THAT THIS FORM BE FILLED OUT COMPLETELY. ONLY NO ITEMS. IF THE INFORMATION REQUESTED IS UNKNOWN, SO INDICATE.

COMMENTS:

EVALUATION OF STUDENT BY RELEASING INSTRUCTOR

CIRCLE THE MOST APPROPRIATE RESPONSE (IN YOUR JUDGEMENT) USING THE SCALES PROVIDED. OMIT NO ITEMS. WRITE "UNKNOWN" TO THE SIDE OF THE ITEM IF NECESSARY. BE SURE TO INDICATE THE CLASS SIZE ON THE LAST ITEM.

KNOWLEDGE AND USE OF SAFETY RULES.	Excellent	Good	Acceptable	Poor	Unacceptable
KNOWLEDGE AND USE OF TOOLS.	Excellent	Good	Acceptable	Poor	Unacceptable
ABILITY TO USE HANDS (MANUAL DEXTERITY).	Excellent	Good	Acceptable	Poor	Unacceptable
ABILITY TO ACCOMPLISH MULTIPLE PROBLEM DIAGNOSIS AND REPAIR. REPAIR.	Excellent	Good	Acceptable	Poor	Unacceptable
INTEREST IN THE MACHINIST FIELD.	Excellent	Good	Acceptable	Poor	Unacceptable
ABILITY TO FUNCTION ACADEMICALLY (READING AND MATH PROBLEM SOLVING) IN THE MACHINIST FIELD.	Excellent	Good	Acceptable	Poor	Unacceptable
ANTICIPATED CHANCES OF SUCCESS IF STUDENT TAKES A JOB IN THE MACHINIST FIELD.	Excellent	Good	Acceptable	Poor	
ANTICIPATED DEPTH OF ADDITIONAL TRAINING IN THE MACHINIST FIELD THE STUDENT WILL NEED TO BE SUCCESSFUL IN THE FIELD.	Much More	More	Little More	None	
ABILITY OF STUDENT TO BENEFIT FROM FURTHER TRAINING IN THE MACHINIST FIELD.	Excellent	Good	Acceptable	Poor	Unacceptable
ABILITY OF STUDENT TO HANDLE THE PERFORMANCE OF TASKS AND PROCEDURES RELATING TO THE MACHINIST FIELD.	Excellent	Good	Acceptable	Poor	Unacceptable
ABILITY OF THE STUDENT TO CONCENTRATE OVER A PERIOD OF TIME.	Excellent	Good	Acceptable	Poor	Unacceptable
OVERALL RANKING OF STUDENT AS COMPARED WITH OTHER STUDENTS IN THE SAME COURSE.	Upper 5%	Upper 10%	Upper 25%	Upper 50%	Lower 50%

OF A CLASS OF_____ STUDENTS.

TOTAL TEST SCORES

MSCT._____ DATE._____

MECT._____ DATE._____

MSPT._____ DATE._____

MSPT._____ DATE._____

UNITS OR SECTIONS COMPLETED BY STUDENT

NOTE: PLACE A CHECK IN THE BLANKS BESIDE THE UNITS OR SECTIONS WHICH WERE AT LEAST ONE COMPLETED BY THE STUDENT. USE THE PROGRESS RECORD ON THE BACK OF THIS FORM TO DETERMINE COMPLETED UNITS. THE UNITS OR SECTIONS CHECKED HERE MUST AGREE WITH THE PROGRESS RECORD ON THE BACK OF THIS FORM.

1. SHOP MATH	0	13A. PLANER	0
2. BLUEPRINT READING	0	14. SURFACE GRINDING	0
3. MEASURING	0	15. TOOL POST GRINDING	0
4. LAYOUT	0	16. CYLINDRL. GRINDING	0
5. BENCH WORK	0	17. REVALS - HEAT TRT.	0
6. BENCH-PED. GRINDING	0	18. JOB SHOP	0
7. DRILL PRESS	0	19. OXYACET. WELDING	0
8. DRILL GRINDING	0	20. ARC WELDING	0
9. POWER SAWS	0	21. BASIC STORES.	0
10. ENGINE LATHE	0	22A. ENGR. ADDR.	0
11. MILLING MACH. INTRD.	0	22B. DRILL JIG COMPNTS.	0
12A. MILLING MACH. VERT.	0	22C. DRILL JIG DESN.	0
12B. MILLING MACH. HRZ.	0	22D. MILL. FIXT. COMPNTS.	0
13. SHAPER	0	22E. MILL. FIXT. DESN.	0

RECORD OF GRADES FOR THIS COURSE

GRADING PERIOD	GRADE	INSTRUCTOR
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____
PERIOD: (SEM) (QTR) (QUIN) OTHER _____	_____	_____

PERMISSION TO RELEASE THIS RECORD TO OTHER SCHOOLS AND/OR PROSPECTIVE EMPLOYERS FOR THEIR USE IN MY BEHALF IS HEREBY GRANTED.

DATE:_____

SIGNATURE OF STUDENT: _____

SIGNATURE OF PARENT OR GUARDIAN IF STUDENT IS LESS THAN 18 YEARS OLD:

_____

Signature of Releasing Instructor: _____

Date:

_____

SDE 26-051-00
(This form becomes obsolete 6/30/80)

© S. C. State Dept. of Education 1975

STUDENT'S NAME

LAST HIGH SCHOOL FIRST MI

ENTRY DATE

SHOP MATH

1- 1 ☐ ___ DATE: _____
1- 2 ☐ ___ DATE: _____
1- 3 ☐ ___ DATE: _____
1- 4 ☐ ___ DATE: _____
1- 5 ☐ ___ DATE: _____
1- 6 ☐ ___ DATE: _____
1- 7 ☐ ___ DATE: _____
1- 8 ☐ ___ DATE: _____
1- 9 ☐ ___ DATE: _____

BLUEPRINT READING

2- 1 ☐ ___ DATE: _____
2- 2 ☐ ___ DATE: _____
2- 3 ☐ ___ DATE: _____
2- 4 ☐ ___ DATE: _____
2- 5 ☐ ___ DATE: _____
2- 6 ☐ ___ DATE: _____
2- 7 ☐ ___ DATE: _____

BENCHWORK

3- 1 ☐ ___ DATE: _____
3- 2 ☐ ___ DATE: _____
3- 3 ☐ ___ DATE: _____
3- 4 ☐ ___ DATE: _____
3- 5 ☐ ___ DATE: _____
3- 6 ☐ ___ DATE: _____
3- 7 ☐ ___ DATE: _____
3- 8 ☐ ___ DATE: _____
3- 9 ☐ ___ DATE: _____
3-10 ☐ ___ DATE: _____
3-11 ☐ ___ DATE: _____
3-12 ☐ ___ DATE: _____
3-13 ☐ ___ DATE: _____
3-14 ☐ ___ DATE: _____
3-15 ☐ ___ DATE: _____
3-16 ☐ ___ DATE: _____
3-17 ☐ ___ DATE: _____
3-18 ☐ ___ DATE: _____
3-19 ☐ ___ DATE: _____
3-20 ☐ ___ DATE: _____
3-21 ☐ ___ DATE: _____
3-22 ☐ ___ DATE: _____
3-23 ☐ ___ DATE: _____
3-24 ☐ ___ DATE: _____
3-25 ☐ ___ DATE: _____
3-26 ☐ ___ DATE: _____

LAYOUT

4- 1 ☐ ___ DATE: _____
4- 2 ☐ ___ DATE: _____
4- 3 ☐ ___ DATE: _____
4- 4 ☐ ___ DATE: _____
4- 5 ☐ ___ DATE: _____
4- 6 ☐ ___ DATE: _____
4- 7 ☐ ___ DATE: _____

BENCH WORK

5- 1 ☐ ___ DATE: _____
5- 2 ☐ ___ DATE: _____
5- 3 ☐ ___ DATE: _____
5- 4 ☐ ___ DATE: _____
5- 5 ☐ ___ DATE: _____
5- 6 ☐ ___ DATE: _____
5- 7 ☐ ___ DATE: _____

BENCH-POW GRINDING

6- 1 ☐ ___ DATE: _____
6- 2 ☐ ___ DATE: _____
6- 3 ☐ ___ DATE: _____

DRILL PRESS

7- 1 ☐ ___ DATE: _____
7- 2 ☐ ___ DATE: _____
7- 3 ☐ ___ DATE: _____
7- 4 ☐ ___ DATE: _____
7- 5 ☐ ___ DATE: _____
7- 6 ☐ ___ DATE: _____
7- 7 ☐ ___ DATE: _____
7- 8 ☐ ___ DATE: _____
7- 9 ☐ ___ DATE: _____
7-10 ☐ ___ DATE: _____
7-11 ☐ ___ DATE: _____
7-12 ☐ ___ DATE: _____
7-13 ☐ ___ DATE: _____
7-14 ☐ ___ DATE: _____

DRILL GRINDING

8- 1 ☐ ___ DATE: _____
8- 2 ☐ ___ DATE: _____

POWER SAWS

9- 1 ☐ ___ DATE: _____
9- 2 ☐ ___ DATE: _____
9- 3 ☐ ___ DATE: _____
9- 4 ☐ ___ DATE: _____
9- 5 ☐ ___ DATE: _____
9- 6 ☐ ___ DATE: _____
9- 7 ☐ ___ DATE: _____
9- 8 ☐ ___ DATE: _____
9- 9 ☐ ___ DATE: _____
9-10 ☐ ___ DATE: _____
9-11 ☐ ___ DATE: _____
9-12 ☐ ___ DATE: _____
9-13 ☐ ___ DATE: _____

ENGINE LATHE

10- 1 ☐ ___ DATE: _____
10- 2 ☐ ___ DATE: _____
10- 3 ☐ ___ DATE: _____
10- 4 ☐ ___ DATE: _____
10- 5 ☐ ___ DATE: _____
10- 6 ☐ ___ DATE: _____
10- 7 ☐ ___ DATE: _____
10- 8 ☐ ___ DATE: _____
10- 9 ☐ ___ DATE: _____
10-10 ☐ ___ DATE: _____
10-11 ☐ ___ DATE: _____
10-12 ☐ ___ DATE: _____
10-13 ☐ ___ DATE: _____
10-14 ☐ ___ DATE: _____
10-15 ☐ ___ DATE: _____
10-16 ☐ ___ DATE: _____
10-17 ☐ ___ DATE: _____
10-17A ☐ ___ DATE: _____
10-18 ☐ ___ DATE: _____
10-19 ☐ ___ DATE: _____
10-20 ☐ ___ DATE: _____
10-21 ☐ ___ DATE: _____
10-22 ☐ ___ DATE: _____
10-23 ☐ ___ DATE: _____
10-24 ☐ ___ DATE: _____
10-25 ☐ ___ DATE: _____
10-26 ☐ ___ DATE: _____
10-27 ☐ ___ DATE: _____

MILLING MACH. 10-90.

11- 1 ☐ ___ DATE: _____
11- 2 ☐ ___ DATE: _____
11- 3 ☐ ___ DATE: _____
11- 4 ☐ ___ DATE: _____
11- 5 ☐ ___ DATE: _____
11- 6 ☐ ___ DATE: _____
11- 7 ☐ ___ DATE: _____
11- 8 ☐ ___ DATE: _____
11- 9 ☐ ___ DATE: _____
11-10 ☐ ___ DATE: _____
11-11 ☐ ___ DATE: _____
11-12 ☐ ___ DATE: _____

VERT. MILLING MACH.

12-A- 1 ☐ ___ DATE: _____
12-A- 2 ☐ ___ DATE: _____
12-A- 3 ☐ ___ DATE: _____
12-A- 4 ☐ ___ DATE: _____
12-A- 5 ☐ ___ DATE: _____
12-A- 6 ☐ ___ DATE: _____
12-A- 7 ☐ ___ DATE: _____
12-A- 8 ☐ ___ DATE: _____
12-A- 9 ☐ ___ DATE: _____
12-A-10 ☐ ___ DATE: _____

REV. MILLING MACH.

12-B- 1 ☐ ___ DATE: _____
12-B- 2 ☐ ___ DATE: _____
12-B- 3 ☐ ___ DATE: _____
12-B- 4 ☐ ___ DATE: _____
12-B- 5 ☐ ___ DATE: _____
12-B- 6 ☐ ___ DATE: _____
12-B- 7 ☐ ___ DATE: _____
12-B- 8 ☐ ___ DATE: _____

SHAPER

13- 1 ☐ ___ DATE: _____
13- 2 ☐ ___ DATE: _____
13- 3 ☐ ___ DATE: _____
13- 4 ☐ ___ DATE: _____
13- 5 ☐ ___ DATE: _____
13- 6 ☐ ___ DATE: _____
13- 7 ☐ ___ DATE: _____

PLANER

13-A- 1 ☐ ___ DATE: _____

SURFACE GRINDING

14- 1 ☐ ___ DATE: _____
14- 2 ☐ ___ DATE: _____
14- 3 ☐ ___ DATE: _____
14- 4 ☐ ___ DATE: _____
14- 5 ☐ ___ DATE: _____
14- 6 ☐ ___ DATE: _____

TOOLPOST GRINDING

15- 1 ☐ ___ DATE: _____
15- 2 ☐ ___ DATE: _____
15- 3 ☐ ___ DATE: _____
15- 4 ☐ ___ DATE: _____

UNIVRSL. GRINDING

16- 1 ☐ ___ DATE: _____
16- 2 ☐ ___ DATE: _____
16- 3 ☐ ___ DATE: _____

METALS-HEAT TRT.

17- 1 ☐ ___ DATE: _____
17- 2 ☐ ___ DATE: _____
17- 3 ☐ ___ DATE: _____
17- 4 ☐ ___ DATE: _____
17- 5 ☐ ___ DATE: _____
17- 6 ☐ ___ DATE: _____
17- 7 ☐ ___ DATE: _____
17- 8 ☐ ___ DATE: _____
17- 9 ☐ ___ DATE: _____
17-10 ☐ ___ DATE: _____
17-11 ☐ ___ DATE: _____
17-12 ☐ ___ DATE: _____
17-13 ☐ ___ DATE: _____
17-14 ☐ ___ DATE: _____
17-15 ☐ ___ DATE: _____

JIG BORING

18- 1 ☐ ___ DATE: _____
18- 2 ☐ ___ DATE: _____
18- 3 ☐ ___ DATE: _____
18- 4 ☐ ___ DATE: _____
18- 5 ☐ ___ DATE: _____
18- 6 ☐ ___ DATE: _____
18- 7 ☐ ___ DATE: _____
18- 8 ☐ ___ DATE: _____
18- 9 ☐ ___ DATE: _____
18-10 ☐ ___ DATE: _____

OXACT. WELDING

19- 1 ☐ ___ DATE: _____
19- 2 ☐ ___ DATE: _____
19- 3 ☐ ___ DATE: _____
19- 4 ☐ ___ DATE: _____
19- 5 ☐ ___ DATE: _____
19- 6 ☐ ___ DATE: _____
19- 7 ☐ ___ DATE: _____
19- 8 ☐ ___ DATE: _____
19- 9 ☐ ___ DATE: _____
19-10 ☐ ___ DATE: _____

ARC WELDING

20- 1 ☐ ___ DATE: _____
20- 2 ☐ ___ DATE: _____

BASIC DIE MEDG.

21- 1 ☐ ___ DATE: _____
21- 2 ☐ ___ DATE: _____
21- 3 ☐ ___ DATE: _____
21- 4 ☐ ___ DATE: _____
21- 5 ☐ ___ DATE: _____
21- 6 ☐ ___ DATE: _____
21- 7 ☐ ___ DATE: _____
21- 8 ☐ ___ DATE: _____
21- 9 ☐ ___ DATE: _____
21-10 ☐ ___ DATE: _____
21-11 ☐ ___ DATE: _____
21-12 ☐ ___ DATE: _____
21-13 ☐ ___ DATE: _____
21-14 ☐ ___ DATE: _____
21-15 ☐ ___ DATE: _____
21-16 ☐ ___ DATE: _____
21-17 ☐ ___ DATE: _____
21-18 ☐ ___ DATE: _____
21-19 ☐ ___ DATE: _____
21-20 ☐ ___ DATE: _____
21-21 ☐ ___ DATE: _____

ENGR. ASSB.

22-A- 1 ☐ ___ DATE: _____
22-A- 2 ☐ ___ DATE: _____
22-A- 3 ☐ ___ DATE: _____

DRILL JIG COMPTS.

22-B- 1 ☐ ___ DATE: _____
22-B- 2 ☐ ___ DATE: _____
22-B- 3 ☐ ___ DATE: _____
22-B- 4 ☐ ___ DATE: _____

DRILL JIG BODY.

22-C- 1 ☐ ___ DATE: _____
22-C- 2 ☐ ___ DATE: _____
22-C- 3 ☐ ___ DATE: _____
22-C- 4 ☐ ___ DATE: _____

MILL. FIXT. COMPTS.

22-D- 1 ☐ ___ DATE: _____
22-D- 2 ☐ ___ DATE: _____
22-D- 3 ☐ ___ DATE: _____

MILL. FIXT. BODY.

22-E- 1 ☐ ___ DATE: _____
22-E- 2 ☐ ___ DATE: _____
22-E- 3 ☐ ___ DATE: _____
22-E- 4 ☐ ___ DATE: _____

OFFICIAL STUDENT PROGRESS RECORD
for
Machine Shop

NOTICE TO INSTRUCTOR(s): This is an OFFICIAL record of the student's progress in the course. Please follow these directions [illegible]

1. Draw a line through all IAP's which you do not require of the student to get credit for this unit.

2. Place a check in the block beside each required IAP check:

   a. You have PASSED the student on the IAP, or

   b. You are giving the student CREDIT for the IAP because of YOUR PERSONAL KNOWLEDGE that the student has competence in the training required by the IAP.

3. Optional: Space is provided for your initials and the date.

4. Be sure to complete ALL other relevant information about the student on this form.

5. If the student completes the course or withdraws from the course for any reason, complete the reverse side of this form and IMMEDIATELY forward to the records office.

Instructor's signature:

_____

SCE 26-051-00
(This form becomes obsolete 6/30/80)

© S. C. State Dept. of Education 1975

25

MACHINE SHOP TRANSCRIPT EVALUATION FORM

Name of student being evaluated

Vocational center attended

Date of graduation / Date of evaluation

Name of evaluator

AV-AV used, not necessarily objective

( ) - objective but not necessarily AV used

I - Introduced at this point, proficiency expected next quarter

* - increased expectation tolerance with usage

I* - Introduced in specific units, expected proficiency by end of quarter

+ - performance evaluated

- "pencil & paper" evaluated

*, I - tolerance initially less than stated objective

Complete information on back of form before beginning evaluation.

MACHINE SHOP TRANSCRIPT EVALUATION FORM

Name _____

Introduction

____5-1.
____5-3.
____5-4.
____(5-7)+
____7-1.
____(10-5).
____(10-26)+
____11-1.
____(11-2)
____(11-3).
____(11-4)
____11-5.
____(12A-2).
____(12A-6)+
____(12A-7).

End of First Quarter

____(7-12).
____(7-13).
____(8-1-I)+
____(9-2).
____(9-3).
____(9-5)+

- 1st QUARTER -

Project 1-A

____3-1+
____3-8+
____3-10+
____9-1-AV.
____9-11+
____10-3-AV+
____10-4+
____10-6-I+
____10-12-I
____10-13+
____10-15-AV+
____10-23-I+

Project 1-B

____3-1+
____3-10-AV+
____3-16-AV+
____3-19-AV-I
____4-1+
____5-2+
____5-5+
____7-2+
____(7-3)+
____(7-4)+
____7-5+
____(7-6)+
____7-7+
____9-11+
____10-4+
____12A-10+
____14-1.
____14-2-I+
____14-3-I+
____14-4-I+

Project 2-A

____3-1+
____3-8+
____3-10-AV+
____3-13+
____3-19-I*+
____9-11+
____10-3+
____10-4+
____10-6-AV-I+
____10-8-AV-I+
____10-13-AV+
____10-15-AV+
____10-17+
____10-20-AV
____10-22-AV-I*+

Project 2-B

____3-1+
____3-7
____3-8+
____3-10+
____3-16+
____3-19-AV
____(3-20)+
____3-24+
____4-3+
____4-7-AV
____5-2+
____5-5+
____(7-4)+
____7-5+
____(7-9)+
____(7-10)+
____(7-11)+
____9-11+

Project 3-A

____3-1+
____3-8*
____3-17-I
____9-11+
____(10-14)+
____(10-15)+
____10-17+
____10-22-I*+
____11-6-I*+
____11-7-I*+
____11-9-I+
____12A-10

Project 3-B

____3-1+
____9-11-
____10-22-I*
____10-23-I+
____10-24
____10-25-L
____11-6-I*+
____11-7-I*+
____11-9-I+
____12A-10

Project 2-B Continued

____10-1.
____10-2.
____10-3+
____11-11-I+
____12A-3-AV+
____12A-4-AV+
____12A-10+
____14-2-I*
____14-3-I*
____14-4-I

- 2nd QUARTER

Project 4

____3-19+
____(8-1)+
____10-7-AV-I+
____10-8+
____10-9+
____10-10+
____10-12-AV+
____10-17+
____10-18+
____10-22+
____10-25.
____11-6+
____11-7+
____11-9+
____11-10+
____12A-10+
____12B-6-I+
____15-1+

Project 5

____3-10-AV-Rev.+
____3-12-AV-I+
____10-12+
____10-16+
____10-18+
____10-23+
____15-1+
____15-2+

- 3rd QUARTER

Project 6-A

____5-6+
____6-1+
____6-2+
____(7-4)
____7-5+
____10-6+
____10-7+
____11-6+
____11-7+
____11-9
____12A-10+
____12B-6+

Project 6-B

____5-6+
____6-1+
____6-2+
____(7-4)+
____7-5+
____10-6+
____10-7+
____10-21-AV.
____11-9+
____11-11+
____12A-10+
____14-2+
____14-3+
____14-4+

- 4th QUARTER

Project 10

____3-12+
____10-22+
____12A-10+
____(13-1).
____(13-2).
____(13-3).
____13-4+
____(13-5)+
____(13-7)+
____14-2+
____14-3+
____14-4+

AV-AV used, not necessarily objective

( ) - objective but not necessarily AV used

I - Introduced at this point, proficiency expected next quarter

* - increased expectation tolerance with usage

I* - Introduced in specific units, expected proficiency by end of quarter

+ - performance evaluated

. "pencil & paper" evaluated

*, I - tolerance initially less than stated objective

27

TUITION SCHOLARSHIP

Greenville Technical College is proud to offer tuition scholarships in each of the Articulation Grant programs: Machine Tool Technology, Industrial Electricity, and Engineering Graphics Technology. These scholarships were suggested at an Articulation Grant Advisory Committee meeting and hardily approved by the Greenville Technical College administration. It is hoped their inception will stimulate interest in continuing quality education and training in these fields.

The Donaldson, Enoree, and Foothills Vocational Centers will each select their most outstanding and/or worthy student in their drafting, electricity, and machine shop programs. Wade Hampton High School will select a student from their electricity program. The three scholarship students from each center will receive one quarter of tuition free study at Greenville Technical College. After their first quarter, each student may receive an extension for another quarter based upon review and approval by his or her instructors and department head.

After the selection of the students by their instructors, the director or principal of each school should send a copy of all the names to the heads of the Industrial and Technical Divisions, Mr. J.D. Warren and Mr. Les Caraway. This is necessary to insure the tuition waiver be available when the student begins.

GUIDANCE INFORMATION FORM

This form was designed to supply feedback to guidance counselors, instructors, and administrators. It will be sent by the Greenville Technical College department involved to the vocational center each time there is a horizontal line of asterisks. The information on the form will supply data to evaluate our effectiveness and suggest continuation or change in our procedures.

+ + + +

MACHINE SHOP

ARTICULATION STUDENT'S PROGRESS

Your student, _____, from _____

Vocational Center has exempted through MTT_____ (quarter _____) and

may (conditionally, unconditionally) enroll in MTT_____(quarter___).

This placement was based on

_____the "machine shop transcript" only

_____the "machine shop transcript" and an interview

requested by _____ and conducted by _____

_____vocational instructor's recommendation

The student

_____readily accepted placement

_____requested a lower placement - outcome _____

_____requested a higher placement - outcome _____

Date of evaluation _____

The student at mid-term has been re-evaluated and is

_____progressing satisfactorily

_____moved back to level of competence

(may be able to finish quarter's work, may have to take Inc.)

_____ _____

Student's signature Instructor's signature

Date _____

The student at the end of the first quarter of work

_____successfully completed MTT_____(grade ____) on _____(date).

_____received an incomplete

_____dropped out before end of quarter

Student's status at the end of the first year of work-_____

_____

I GIVE MY PERMISSION FOR THE INFORMATION ON THIS SHEET TO BE RELEASED TO GREENVILLE COUNTY SCHOOL SYSTEM.

DATE _____ LEGAL SIGNATURE _____ SIGNATURE OF PARENT IF UNDER 18 _____

MACHINE SHOP UNITS

UNIT 1	MATH - MATH DEPT.
UNIT 2	BLUEPRINT READING - ENGINEERING GRAPHICS DEPT.
UNIT 3	MEASURING
UNIT 4	LAYOUT
UNIT 5	BENCH WORK
UNIT 6	BENCH/PEDISTAL GRINDING
UNIT 7	DRILL PRESS
UNIT 8	DRILL GRINDING
UNIT 9	POWER SAWS
UNIT 10	ENGINE LATHES
UNIT 11	MILLING MACHINES
UNIT 12A	VERTICAL MILLING
UNIT 12B	HORIZONTAL MILLING
UNIT 13	SHAPER
UNIT 14	SURFACE GRINDING
UNIT 15	TOOL POST GRINDING
UNIT 16	UNIVERSAL GRINDING

UNITS TO BE USED AT GREENVILLE TEC

1ST QUARTER AT GREENVILLE TEC

INTRODUCTION

MS-3-1
MS-3-7
MS-3-8
MS-3-10

MS-4-1
MS-5-1
MS-5-3
MS-7-1

PROJECT 1A

MS-9-1
MS-9-11
MS-10-3
MS-10-12
MS-10-23
MS-10-15
MS-10-6
MS-10-13
MS-3-8
MS-3-1
MS-3-10

PROJECT 1B

MS-9-11
MS-12A-10
MS-3-10
MS-3-16
MS-3-19
MS-12A-10
MS-3-16
MS-7-2
MS-7-7
MS-14-1
MS-14-2
MS-14-3
MS-14-4
MS-14-5

1ST QUARTER (Continued)

PROJECT 2A
MS-10-1
MS-10-2
MS-10-3
MS-10-4
MS-10-6
MS-10-8
MS-10-13
MS-10-15
MS-10-20
MS-10-22
MS-3-13
MS-3-8
MS-3-10

PROJECT 2B
MS-12A-10
MS-3-16
MS-3-19
MS-3-18
MS-3-24
MS-3-8
MS-3-7
MS-7-5
MS-4-7
MS-12A-3
MS-12A-4
MS-12A-10 BORING
MS-3-10

PROJECT 3A
MS-11-6
MS-11-7
MS-11-9

INSTRUCTOR MAY SUGGEST REVIEW OF SLIDES AND TAPES AS NEEDED.

PROJECT 3B
MS-10-22
MS-10-23
MS-10-24

INSTRUCTOR MAY SUGGEST REVIEW OF SLIDES AND TAPES AS NEEDED.

PROJECT 4 (2ND QUARTER)
MS-10-25
MS-10-12
MS-11-10
MS-10-11
MS-10-18
MS-10-22 (if needed)
MS-12B-6
MS-11-7
MS-11-9

2ND QUARTER (Continued)

PROJECT 5A
MS-3-10 REVIEW
MS-3-12
MS-15-1 OPTION
MS-15-2 OPTION

THIS PROJECT MUST BE ASSEMBLED.

PROJECT 6A (3RD QUARTER)
MS-10-7
MS-11-7 REVIEW
MS-11-9 REVIEW

ASSEMBLY.

PROJECT 6B
MS-10-21

NOTICE CLOSE TOLERANCE- GRINDING-HOLE CENTER-DISTANCE
SPACER LENGTH-ASSEMBLY

PROJECT 10 (4TH QUARTER)

STUDENT DRAWS HIS OWN PRINT- MAKES PARTS TO SPECIFICATION AND ASSEMBLES PARTS-SHOULD BE NO REVIEW AT THIS POINT.

MACHINE SHOP - UNIT 2 - BLUEPRINT READING

MS-2-1 INTRODUCTION TO BLUEPRINT READING
When you finish this learning package, you will be able to answer questions about blueprints and ablut the title block and notes on blueprints.

MS-2-2 ONE, TWO, AND THREE VIEW DRAWINGS
When you finish this learning package, you will be able to identify the different views of objects as shown by isometric drawings of the object.

MS-2-3 ALPHABET OF LINES
When you finish this learning package, you will be able to identify the different types of lines used in blueprints.

MS-2-4 SECTIONS
When you finish this learning package, you will be able to identify the following sections: full, half, offset, broken out, revolved, and removed.

MS-2-5 SCALE DRAWING
When you finish this learning package, you will be able to answer (basic) questions about (interpreting the) scale (of a) drawing.

MS-2-6 FINISH MARKS
When you finish this learning package, you will be able to identify and explain the finish marks on blueprints.

MS-2-7 FREEHAND SKETCHING
When you finish this learning package, you will be able t make freehand sketches of cylindrical, rectangular, and irregularly shaped work pieces.

MACHINE SHOP - UNIT 3 - MEASURING

MS-3-1 THE MACHINIST'S SCALE

When you finish this learning package, you will be able to use the machinist's scale to measure the length and width of a piece of stock. Your measurements must be within ± 1/64 of an inch of specifications.

MS-3-2 CENTER HEAD OF THE COMBINATION SET

When you finish this learning package, you will be able to locate and mark the center on both ends of a round bar of any size from ¼" to 6" using the center head of the combination set. Your marks must be within ± 1/32 of an inch of specifications.

MS-3-3 THE SQUARE HEAD OF THE COMBINATION SET

When you finish this learning package, you will be able to use the square head to scribe straight lines and angles to within ±1/32 of an inch of specification.

MS-3-4 DIVIDERS

When you finish this learning package, you will be able to use the machinist's scale and dividers to transfer the dimensions of a drawing to a workpiece. Your transferred measurements must be within ±1/64 of an inch of specifications.

MS-3-5 HERMAPHRODITE CALIPERS

When you have finished this learning package, you will be able to use the hermaphrodite caliper to: a-scribe parallel lines on a workpiece, and b-locate and mark the center of a round workpiece. Your work must be within ± 1/64 of an inch of specifications.

MS-3-6 OUTSIDE CALIPERS

When you finish this learning package, you will be able to use the outside caliper and the machinist's scale to measure the outside diameter of round workpieces to within ±1/64" of specifications.

MS-3-7 BEVEL PROTRACTOR

When you finish this learning package, you will be able to use the bevel protractor of the combination set to lay out, on a workpiece, the various angles called for on a set of specifications to within ±1/2°.

MS-3-8 OUTSIDE MICROMETER

When you finish this learning package, you will be able to use the outside micrometer to measure: the outside diameter of round stock, the thickness of flat stock, and the length of flat stock.

MS-3-9 INSIDE CALIPERS

When you finish this learning package, you will be able to use the inside calipers and the outside micrometer to measure the inside diameters of tubular stock to within ±.002" of specifications.

MS-3-10 TELESCOPING GAGE

When you finish this learning package, you will be able to use the telescoping gage and the outside micrometer to measure internal dimensions to within ±.001" of specifications

MACHINE SHOP - UNIT 3 CONTINUED - MEASURING

MS-3-11 INSIDE MICROMETER
When you finish this learning package, you will be able to assemble and use the inside micrometer to measure inside diameters of tubular stock to within ±.001" of specifications.

MS-3-12 DEPTH MICROMETER
When you finish this learning package, you will be able to assemble, adjust, and use the depth micrometer to measure the depth of holes and slots to within ±.001" of specifications.

MS-3-13 SCREW PITCH GAGE
When you finish this learning package, you will be able to use the screw pitch gage to measure the number of threads per inch on any given screw or bolt.

MS-3-13A SCREW THREAD MICROMETER
When you finish this learning package, you will be able to use the screw thread micrometer to measure the pitch diameter of screw threads to within ±.001" of specifications.

MS-3-14 VERNIER CALIPER
When you get finished with this learning package, you will be able to use the vernier caliper to measure the outside and inside diameters of round stock and the depths of holes and slots to within ±.001" of specifications.

MS-3-15 SURFACE GAGE
When you finish this learning package, you will be able to use the surface gage to measure and scribe lines on vertical surfaces to within ±.010" of specifications.

MS-3-16 VERNIER HEIGHT GAGE
When you finish this learning package, you will be able to use the vernier height gage to make comparison checks to within ±.001" of specifications.

MS-3-17 OPTICAL COMPARATORS
When you have finished this learning package, you will be able to answer questions about optical comparators and how they work.

MS-3-18 GAGE BLOCKS AND DIAL INDICATORS
When you finish this learning package, you will be able to use gage blocks to verify the accuracy of a dial indicator to within ±.0001".

MS-3-19 DIAL INDICATOR
When you finish this learning package, you will be able to use the dial indicator to check the concentricity (roundness) of round stock to within ±.001".

MS-3-20 DIAL INDICATOR - VISE ALIGNMENT
When you finish this learning package, you will be able to use the dial indicator to aling a vise on a milling machine to within ±.001" of specifications.

MS-3-21 RADIUS GAGE

When you finish this learning package, you will be able to use a radius gage to measure convex and concave radii of parts.

MS-3-22 PLANER GAGE

When you finish this learning package, you will be able to adjust the planer gage to a given height.

MS-3-23 VERNIER BEVEL PROTRATOR

When you finish this learning package, you will be able to use the universal vernier bevel protractor to lay out a given angle, with an accuracy of $\pm 0^{\circ}5'$.

MS-3-24 SINE BAR

When you finish this learning package, you will be able to use a sine bar to measure and set up various angles with an acuracy of $\pm 0^{\circ}5'$.

MS-3-25 SNAP GAGES

When you finish this learning package, you will be able to use snap gages to measure lengths, diameters, and thicknesses of parts.

MS-3-26 GEAR TOOTH VERNIER CALIPER

When you finish this learning package, you will be able to use a gear tooth vernier caliper to measure the addendum and the chordal thickness of any gear tooth.

MACHINE SHOP - UNIT 4 - LAYOUT

MS-4-1 INTRODUCTION TO LAYOUT TOOLS AND ACCESSORIES
When you finish this learning package, you will be able to identify basic layout tools and answer questions about their use.

MS-4-2 USING LAYOUT TOOLS: PART 1
When you finish this learning package, you will be able to layout fluid, scriber, dividers, trammels, hermaphrodite calipers, and prick punch to do layout work to specifications.

MS-4-3 USING LAYOUT TOOLS: PART 2
When you finish this learning package, you will be able to use the vernier height gage, magnifying glass, angle plate, toolmaker's square, c-clamps, parallel clamps, 1-2-3 step blocks, precision square, gage blocks, and sine bar to do layout work to specifications.

MS-4-4 USING LAYOUT TOOLS: PART 3
When you finish this learning package, you will be able to use the combination set, vernier protractor, and protractor depth gage to do inspection and layout work to specifications.

MS-4-5 USING LAYOUT TOOLS: PART 5
When you finish this learning package, you will be able to use the surface gage, dial indicator, planer gage, center punch, and hammer to do layout work to specifications.

MS-4-6 LAYING OUT A T-SLOT CLEANER
When you finish this learning package, you will be able to layout a T-slot cleaner to specifications.

MS-4-7 LAYING OUT A DRILL AND TAP BLOCK
When you finish this learning package, you will be able to lay out a series of six holes on a drill and tap block.

MACHINE SHOP - UNIT 5 - BENCH WORK

MS-5-1 INTRODUCTION TO BENCH TOOLS

When you finish this learning package, you will be able to identify basic bench tools.

MS-5-2 THE BENCH VISE

When you finish this learning package, you will be able to name the parts of a bench vise and do clamping operations on the vise according to specifications.

MS-5-3 FILES AND FILING

When you finish this learning package, you will be able to identify basic files used in machining and file work pieces accurately to specifications.

MS-5-4 HAND HACK SAWS

When you finish this learning package, you will be able to identify and properly use hand hack saws to cut metals.

MS-5-5 TAPS AND DIES

When you finish this learning package, you will be able to identify and properly use taps and dies to cut threads on work pieces to specifications.

MS-5-6 HAND REAMING

When you finish this learning package, you will be able to use hand reamers properly to ream holes in metals to specified sizes.

MS-5-7 HAMMERS, SCREW DRIVERS, CHISELS, PLIERS, AND WRENCHES

When you finish this learning package, you will be able to identify and properly use hammers, screw drivers, chisels, pliers, and wrenches.

MACHINE SHOP - UNIT 6 - BENCH AND PEDESTAL GRINDING

MS-6-1 GRINDING WHEELS

When you finish this learing package, you will be able to use reference charts to select proper grinding wheels. You will be able to install the wheels on a grinder, adjust the wheels, and adjust the tool rest.

MS-6-2 DRESSING WHEELS

When you finish this learning package, you will be able to true and dress a grinding wheel for normal grinding operations.

MS-6-3 GRINDING A RADIUS

When youbfinish this learning package, you will be able to grind a $\frac{1}{4}$" radius to fit a $\frac{1}{4}$" gage.

MACHINE SHOP - UNIT 7 - DRILL PRESS

MS-7-1 INTRODUCTION TO DRILL PRESS

When you finish this learning package, you will be able to name each control on a upright drill press and tell what each control does.

MS-7-2 SETUPS FOR DRILLING

When you finish this learning package, you will be able to use the proper holing devices to set up for the following drilling tasks: round stock, flat stock, sheet metal, irregular shapes.

MS-7-3 DRILL PRESS CUTTING TOOLS

When you finish this learning package, you will be able to identify cutting tools used in a drill press and tell what each one does.

MS-7-4 ADAPTERS AND SLEEVES

When you finish this learning package, you will be able to use sleeves and/or chucks to change the holding capacity of a drill press spindle.

MS-7-5 DRILLING HOLES

When you finish this learning package, you will be able to choose correct feeds and speeds for drilling holes in steel and aluminum. Accuracy will be ± 1/32".

MS-7-6 DEPTH DRILLING

When you finish this learning package, you will be able to use the drill press depth stops to drill holes to a specified depth, with an accuracy of ± 1/16".

MS-7-7 COUNTERBORING, COUNTERSINKING, AND SPOT FACING

When you finish this learning package, you will be able to use the proper tool to counter sink, counterbore, and spot face drilled holes to a tolerance of ± 1/32".

MS-7-8 ANGULAR HOLES

When you finish this learning package, you will be able to make table adjustments and use proper holding devices to drill angular holes in metal, to an accuracy of ± 1/32".

MS-7-9 RADIAL DRILL PRESS

When you finish this package, you will be able to answer questions about the parts and controls of a radial drill press and tell what each does.

MS-7-10 REAMING

When you finish this learning package, you will be able to use a straight or taper shank reamer to ream holes to a specified size, with an accuracy of ± 1/64".

MS-7-11 MACHINE TAPPING

When you finish this learning package, you will be able to use the proper tap drill size, tap, and tapping attachment to drill tap holes as shown on drawings, with an accuracy of ± 1/32".

MACHINE SHOP - UNIT 7 CONTINUED - DRILL PRESS

MS-7-12 PARTS OF A TWIST DRILL

When you finish this learning package, you will be able to name the parts of a twist drill and tell the purpose of each.

MS-7-13 TWIST DRILL SIZES

When you finish this learning package, you will be able to use charts and drill gages to select the proper size drill for a given application.

MS-7-14 TRANSFERRING HOLES

When you finish this learning package, you will be able to transfer holes from one piece of work to another by spotting with a twist drill, using a transfer punch, and using transfer screws.

MACHINE SHOP - UNIT 8 - DRILL GRINDING

MS-8-1 FREEHAND DRILL SHARPENING

When you finish this learning package, you will be able to use the bench or pedestal grinder to sharpen a dull twist drill. Using a drill bit gage as a guide, you will be able to: keep the point angle to within $\pm \frac{1}{2}^{\circ}$ and keep the point centered to within $\pm$ 1/64" drill lip length.

MS-8-2 MACHINE DRILL SHARPENING

When you finish this learning package, you will be able to set up and operate a machine drill grinder to sharpen a two-lip twist drill and a three or four-lip core drill.

MACHINE SHOP - UNIT 9 - POWER SAWS

MS-9-1 POWER SAWS: PARTS AND CONTROLS
When you finish this learning package, you will be able to name the main parts and controls of the horizontal band saw, the vertical band saw, and the power hack saw.

MS-9-2 CHOOSING POWER SAW BLADES
When you finish this learning package, you eill be able to choose the correct power saw blade for a given application.

MS-9-3 FREQUENT SAWING PROBLEMS
When you finish this learning package, you will be able to answer questions about diagnosing and correcting problems often met when using the power hacksaw, vertical band saw, and horizontal band saw.

MS-9-4 SETTING BLADE SPEEDS
When you finish this learning package, you will be able to use charts or a job dial selector to choose the proper speed of a band saw blade for a given job.

MS-9-5 SETTING UP POWER SAW CONTROLS
When you finish this learning package, you will be able to set up the operational controls of a power hack saw and a power band saw for a sawing operation.

MS-9-6 MOUNTING BAND SAW BLADES AND CUTTING STOCK
When you finish this learning package, you will be able to select, mount guides, and install blades on the vertical band saw, and cut stock with a vertical band saw to an accuracy of ± 1/16".

MS-9-7 WELDING BAND SAW BLADES
When you finish this learning package, you will be able to use the bulk blade provided and the welding attachment on the vertical band saw to weld band saw blades. You will weld blades to specified lengths for particular saws and to the thickness required by the blade thickness gage on the vertical band saw.

MS-9-8 VERTICAL BAND SAW: CUTTING CIRCLES, CONTOURS, AND STRAIGHT LINES
When you finish this learning package, you will be able to use the vertical band saw to cut contours, circles, and straight lines with an accuracy of ± 1/16".

MS-9-9 FRICTION SAWING
When you finish this learning package, you will be able to set up a vertical band saw for friction sawing of thins sheet metal.

MS-9-10 BAND FILING
When you finish this learning package, you will be able to select and set up a band file for a band filing job.

MACHINE SHOP - UNIT 9 CONTINUED - POWER SAWS

MS-9-11 HORIZONTAL BAND SAW: STRAIGHT AND ANGLE CUTS

When you finish this learning package, you will be able to use the horizontal band saw to cut stock, with an accuracy of $\pm$ 1/16" and to make angular cuts with an accuracy of $\pm 1^{\circ}$.

MS-9-12 FINISHING A T-SLOT CLEANER

When you finish this learning package, you will be able to finish a T-slot cleaner to blueprint specifications.

MS-9-13 FINISHING A DRILL AND TAP BLOCK

When you finish this learning package, you will be able to finish a drill and tap block to blueprint specifications.

MACHINE SHOP - UNIT 10 - ENGINE LATHE

MS-10-1 LATHE PARTS AND CONTROLS
When you finish this learning package, you will be able to point out the main parts and controls of an engine lathe.

MS-10-2 CUTTING SPEEDS AND FEEDS
When you finish this learning package, you will be able to choose proper feeds and speeds used to machine different kinds of metals on the lathe.

MS-10-3 INSTALLING CHUCKS
When you finish this learning package, you will be able to install all of the chucks used on a lathe.

MS-10-4 TOOL BIT GRINDING
When you finish this learning package, you will be able to: identify and sketch basic lathe tools, grind a general purpose tool bit for use on the engine lather.

MS-10-5 FOUR-JAW CHUCK TRUING
When you finish this learning package, you will be able to true a piece of rouns stock in a 4-jaw chuch.

MS-10-6 FACING TO LENGTH
When you finish this learning package, you will be able to machine a workpiece to a given length using a facing tool on an engine lathr with an accuracy of ±.001".

MS-10-7 COLLET ASSEMBLY AND CENTER DRILLING
When you have finished this learning package, you will be able to: set up a collet assembly on a lather, center drill a workpiece on the lathe.

MS-10-8 GRADUATED MICROMETER COLLAR: ROUGH AND FINISH TURNING
When you finish this learning package, you will be able to use a graduated micrometer collar to turn a workpiece to a specified diameter, with an accuracy of ± .001".

MS-10-9 NECKING
When you finish this learning package, you will be able to do a necking operation on an engine lathe.

MS-10-10 MOUNTING WORK BETWEEN CENTERS
When you finish this learning package, you will be able to mount a workpiece between centers properly.

MS-10-11 ALIGNING THE TAILSTOCK
When you finish this learning package, you will be able to adjust the lathe tailstock properle for turning a work between centers with an accuracy of ± .001".

MS-10-12 DRILLING AND REAMING ON THE LATHE
When you finish this learning package, you will be able to drill and ream a workpiece on an engine lathe to a specified size.

MS-10-13 TURNING WORK ON A MANDREL
When you finish this learning package, you will be able to use a mandrel to turn a workpiece to a specified diameter.

MS-10-14 TURNING TO SQUARE AND FILLETED SHOULDERS
When you finish this learning package, you will be able to cut a square and a filleted shoulder properly.

MS-10-15 FILING AND POLISHING
When you finish this package, you will be able to file and polish a work piece on a lathe to a specified size.

MS-10-16 KNURLING
When you finish this learning package, you will be able to knurl a workpiece on a lathe.

MS-10-17 TAPER TURNING WITH A COMPOUND REST
When you finish this learning package, you will be able to turn a taper on a workpiece using the compound rest.

MS-10-17A CALCULATING TAPERS
When you finish this learning package, you will be able to: calculate proper compound rest angle settings for turning tapers using formulas and trigonometric tables and calculate taper per foot and taper per inch using formulas.

MS-10-18 TAPER TURNING AND TAPER ATTACHMENT
When you finish this learning package, you will be able to turn a taper using the taper attachment for the lathe.

MS-10-19 TAPER TURNING WITH OFFSET TAILSTOCK
When you finish this learning package, you will be able to cut a taper using the offset tailstock method.

MS-10-20 EXTERNAL THREADING WITH THREADING DIE AND HOLDER
When you finish this learning package, you will be able to use the engine lathe to cut threads on a workpiece with a threading die and holder.

MS-10-21 TURNING ON THE LATHE
When you finish this learning package, you will be able to cut an internal thread with the lathe by using a tap and holder.

MS-10-22 THREADING ON THE LATHE: EXTERNAL THREAD CHASING
When you finish this learning package, you will be able to: cut threads on a workpiece by using the lathe thread cutting mechanisms and chase external threads using a lathe.

MACHINE SHOP - UNIT 10 CONTINUED - ENGINE LATHE

MS-10-23 BORING BAR
When you finish this learning package, you will be able to bore a hole to size on a lathe.

MS-10-24 INTERNAL THREADING
When you finish this learning package, you will be able to cut internal threads using the thread chasing mechanism.

MS-10-25 STEADY REST
When you finish this learning package, you will be able to set up and machine a long workpiece using a steady rest.

MS-10-26 FOLLOW REST
When you finish this learning package, you will be able to set up and machine a workpiece using the follow rest.

MS-10-27 FORM TURNING
When you finish this learning package, you will be able to turn a radius on the lathe by hand.

MACHINE SHOP - UNIT 11 - MILLING : INTRODUCTION

MS-11-1 KINDS OF MILLING MACHINES
When you finish this learning package, you will be able to point out and name six different kinds of milling machines and briefly describe their uses.

MS-11-2 LUBRICATION AND PREVENTINE MAINTENANCE
When you finish this learning package, you will be able to lubricate and perform preventive maintenance on milling machines.

MS-11-3 SPEEDS AND FEEDS
When you finish this learning package, you will be able to figure speeds and feeds on a milling machine for given cutters and work materials.

MS-11-4 CUTTING FLUIDS AND OILS
When you finish this learning package, you will be able to identify, mix, and apply cutting fluids and oils in milling machine operations.

MS-11-5 ACCESSORIES AND ATTACHMENTS
When you finish this learning package, you will be able to point out and name several milling machine attachments and tell what is used for.

MS-11-6 INDEXING HEADS AND DIRECT INDEXING
When you finish this learning package, you will be able to: point out and name the five basic parts of an indexing head, describe the use of each part, and set an indexing head up for direct indexing.

MS-11-7 SIMPLE INDEXING
When you finsh this learning package, you will be able to change an index plate and set up an indexing head for simple indexing.

MS-11-8 ANGULAR INDEXING
When you finish this learning package, you will be able to: set up an indexing head for angular indexing and use the proper formulas to figure angular indexing settings.

MS-11-9 PREPARING THE HEAD FOR INDEXING
When you finish this learning package, you will be able to prepare an indexing head along with the footstock (tailstock).

MS-11-10 INDEXING: ALIGNMENT OF CENTERS
When you finish this learning package, you will be able to align the centers of an indexing head and tailstock with an aligning bar and dial indicator.

MS-11-11 VISE AND TABLE ALIGNMENT
When you finish this learning package, you will be able to: align a milling machine vise with a square, a dial indicator, and the marks on the vise base and align the table of a milling machine with the column face.

MS-11-12 ROTARY TABLE AND SLOTTING ATTACHMENT
When you finish this learning package, you will be able to identify and briefly describe the uses of the rotary table and slotting attachment.

MACHINE SHOP - UNIT 12 - MILLING MACHINES: VERTICAL AND HORIZONTAL
SECTION A - VERTICAL MILLING MACHINES

MS-12A-1 SOUTH BEND RAM TURRET: PARTS AND CONTROLS
When you finish this learning package, you will be able to name the parts and controls of a South Bend Ram Turret vertical milling machine and describe what each control does.

MS-12A-2 CINCINNATI NO. 3: PARTS AND CONTROLS
When you finish this learning package, you will be able to point out and name the parts and controls of the Cincinnati No. 3 vertical milling machine and describe what each control does.

MS-12A-3 MODEL "J" BRIDGEPORT: PARTS AND CONTROLS
When you finish this learning package, you will be able to point out and name the parts and controls of the Model "J" Bridgeport vertical head milling machine and describe what each control does.

MS-12A-4 MODEL "J" BRIDGEPORT: VERTICAL HEAD ALIGNMENT"
When you finish this learning package, you will be able to align the head of a Model "J" Bridgeport vertical head milling machine.

MS-12A-5 MODEL "2J" BRIDGEPORT: PARTS AND CONTROLS
When you finish this learning package, you will be able to point out and name the parts and controls of the Model "2J" Bridgeport vertical head milling machine and describe what each control does.

MS-12A-6 CINCINNATI MODEL "D" TOOLMASTER: PARTS AND CONTROLS
When you finish this learning package, you will be able to point out and name the parts and controls of the Cincinnati Model "D" Toolmaster vertical milling machine and describe what each control does.

MS-12A-7 VAN NORMAN MODEL 13: PARTS AND CONTROLS
When you finish this learning package, you will be able to point out and name the parts and controls of the Van Norman Model 13 milling machine and describe what each control does.

MS-12A-8 VERTICAL MILLING MACHINE CUTTERS
When you finish this learning package, you will be able to point out and name cutters used in vertical milling operations and describe their uses.

MS-12A-9 MOUNTING CUTTERS AND CUTTING A KEYSEAT
When you finish this learning package, you will be able to mount vertical milling machine cutters properly and cut a keyseat, using a 4-flute end mill.

MS-12A-10 VERTICAL MILLING SETUPS AND OPERATIONS
When you finish this learning package, you will be able to identify and make setups on a vertical milling machine.

MACHINE SHOP - UNIT 12 - MILLING MACHINES: VERTICAL AND HORIZONTAL
SECTION B - HORIZONTAL MILLING MACHINES

MS-12B-1 CINCINNATI UNIVERSAL NO. 2: PARTS AND CONTROLS
When you finish this learning package, you will be able to name and point out the parts and controls on the above milling machine and describe what each control does.

MS-12B-2 HORIZONTAL MILLING MACHINE CUTTERS
When you finish this learning package, you will be able to point out and name cutters used in horizontal milling operations and describe their uses.

MS-12B-3 MOUNTING HORIZONTAL MILLING CUTTERS
When you finish this learning package, you will be able to mount horizontal milling machine cutters properly.

MS-12B-4 HORIZONTAL MILLING SETUPS AND OPERATIONS
When you finish this learning package, you will be able to identify and make setups on a horizontal milling machine.

MS-12B-5 INSTALLING A VERTICAL HEAD ATTACHMENT
When you finish this learning package, you will be able to install, lubricate, and operate a vertical head milling attachment.

MS-12B-6 CUTTING A SPUR GEAR
When you finish this learning package, you will be able to set up a horizontal column and knee type milling machine for cutting a spur gear and cut a spur gear according to blueprint specifications.

MS-12B-7 CUTTING A RACK GEAR
When you finish this learning package, you will be able to set up a horizontal column and knee type milling machine for cutting a rack rear and cut a rack gear according to blueprint specifications.

MS-12B-8 CUTTING A HELICAL GEAR
When you finish this learning package, you will be able to set up a horizontal column and knee type milling machine for cutting a helical gear and cut a helical gear according to blueprint specifications.

MACHINE SHOP - UNIT 13 - SHAPER

MS-13-1 SHAPER: PARTS AND LUBRICATION

When you finish with this learning package, you will be able to name the main parts of a shaper and lubricate a shaper to manufacturer's specifications.

MS-13-2 SHAPER CONTROLS

When you finish this learning package, you will be able to name the operating controls of the shaper and tell what each does.

MS-13-3 CUTTING TOOLS

When you finish this learning package, you will be able to name common cutting tools used on the shaper and describe and tell the purpose of the angles ground on each tool.

MS-13-4 VISE ALIGNMENT: SHAPER SAFETY

When you finish this learning package, you will be able to: level and align a shaper vise using a dial indicator and a precision square or parallel, and state important safety rules about the shaper swivel head and vertical tool head.

MS-13-5 MACHINING A FLAT, HORIZONTAL SURFACE

When you finish this learning package, you will be able to set up and machine a flat, horizontal surface on a shaper.

MS-13-6 SETUPS FOR VERTICAL AND ANGULAR CUTS

When you finish this learning package, you will be able to set up a shaper and machine vertical and angular cuts on a workpiece to given specifications.

MS-13-7 FEEDS AND SPEEDS

When you finish this learning package, you will be able to figure proper feeds and speeds for different shaper operations, using formulas and charts and set a shaper for a given cutting speed, number of strokes per minute, and feed per stroke.

MACHINE SHOP - UNIT 14 - SURFACE GRINDING

MS-14-1 SURFACE GRINDER PARTS AND CONTROLS
When you finish this learning package, you will be able to name the main parts and controls of a surface grinder.

MS-14-2 SELECTING AND CHANGING GRINDING WHEELS
When you finish this learning package, you will be able to select and change grinding wheels on a surface grinder to meet requirements of the material to be ground.

MS-14-3 MOUNTING AND DRESSING GRINDING WHEELS
When you finish this learning package, you will be able to select, test, mount, and dress the proper grinding wheel for a given job by using the diamond tip dresser to true the wheel in relation to the magnetic chuck.

MS-14-4 MAGNETIC CHUCKS
When you finish this learning package, you will be able to position and secure a workpiece on the magnetic chuck of the surface grinder and align the workpiece surface so that it is parallel to the face of the grinding wheel, using a dial indicator to get an accuracy of ±.001".

MS-14-5 GRINDING A WORKPIECE
When you finish this learning package, you will be able to make a finish drawing and grind two parallel bars to the specifications of that drawing with an accuracy of ±.0005".

MS-14-6 WHEEL DRESSING: CONVEX OR CONCAVE RADIUS
When you finish this learning package, you will be able to set up a radius dresser and dress a grinding wheel to a convex or concave radius.

MACHINE SHOP - UNIT 15 - TOOL POST GRINDING

MS-15-1 SETTING UP A TOOL POST GRINDER
When you finish this learning package, you will be able to set up a lathe and tool post grinder for a grinding operation.

MS-15-2 EXTERNAL TOOL POST GRINDING
When you finish this learning package, you will be able to grind a lather center point properly to fit a center gage in 55 minutes.

MS-15-3 REAMER SHARPENING ON THE TOOL POST GRINDER
When you finish this learning package, you will be able to sharpen a machine reamer properly on a tool post grinder in $1\frac{1}{2}$ hours.

MS-15-4 INTERNAL TOOL POST GRINDING
When you finish this learning package, you will be able to grind a drill bushing bore to blueprint specifications with a tool post grinder in one hour and twenty minutes.

ENGINEERING GRAPHICS TECHNOLOGY ARTICULATION

Greenville Technical College GREENVILLE, SOUTH CAROLINA · 29606

The work upon which this publication is based was performed pursuant to Grant GOO-75-00453 with the U. S. Office of Education, Department of Health, Education, and Welfare.

The project presented or reported herein was performed pursuant to a Grant from the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education and no official endorsement by the U. S. Office of Education should be inferred.

TABLE OF CONTENTS

OVERVIEW. 1, 2

FLOW CHART. 3

ARTICULATION EVALUATION PROCEDURE 4

EMPLOYABILITY PROFILE . . . . . 5 - 9

TUITION SCHOLARSHIPS. 10

GUIDANCE INFORMATION FORM 11, 12

ARTICULATED DRAFTING UNITS. 13

COURSE CONCEPT SHEETS . . . . . 14 - 26

ENGINEERING GRAPHICS TECHNOLOGY

ARTICULATION GRANT

GREENVILLE TECHNICAL COLLEGE

JUNE, 1976

OVERVIEW

In order for the graduates of the vocational high school drafting programs to enter the Engineering Graphics Technology program at Greenville Technical College at an advanced level, course objectives, an Employability Profile, and articulation procedures have been developed.

The concept sheets have been developed jointly by the instructors in the vocational high schools of Greenville County and the department head, division chairman and members of the Educational Development Team at Greenville Technical College. Their purpose is to help insure uniformity of objectives to be covered at either school or college.

The Student's Employability Profile shows the major mechanical drafting units plus a further breakdown of competencies that can be used by an instructor to keep a running account of a student's progress. The completed form supplied by the vocational school instructor will be used along with other data to help determine at what level the student may enter the Engineering Graphics Department at Greenville Technical College. The same form will be used at Greenville Technical College and the additional tasks and competencies will be checked as they are reached.

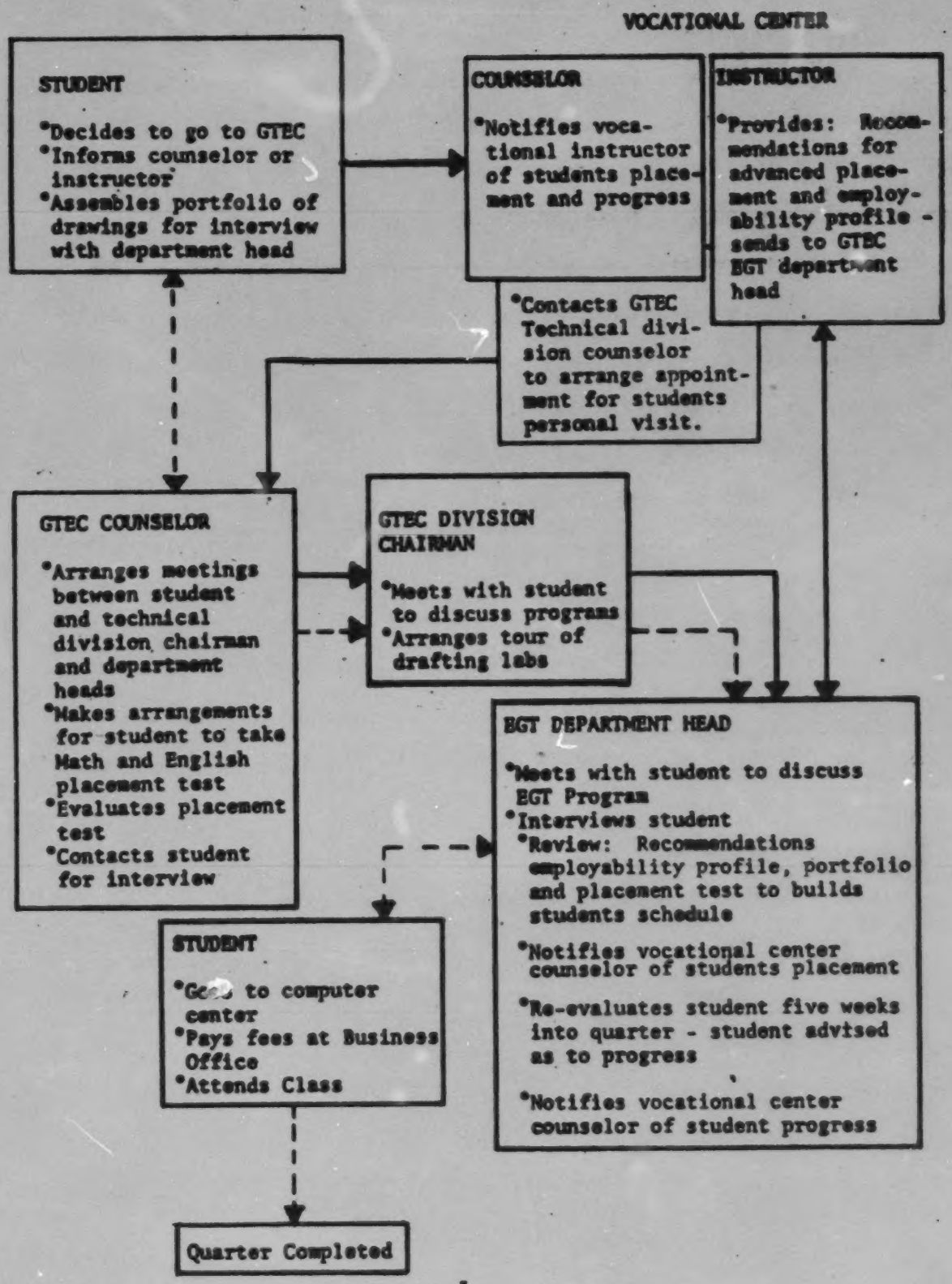
When the student leaves GTEC, the completed form may be used by an employer as a guide with reference to his technical skills accomplishments and also as an indication of his attitudes, behavior, and work habits.

The major units and competencies listed in the Employability Profile cover many specialized fields of drafting so that it is highly unlikely that any one student will cover them all even though he completes two years at a vocational school and two years at Greenville Technical College.

The following courses will be considered for exemption:

Course Title	Course Number
Engineering Graphics I	EGT 111
Engineering Graphics II	EGT 121
Engineering Graphics III	EGT 131
Related Drafting Courses	
Engineering Drawing I	EGT 112
Engineering Drawing II	EGT 122

FLOW CHART OF ARTICULATION STUDENTS - EGT



ARTICULATION EVALUATION PROCEDURE

Students who graduate from any Greenville area vocational centers' drafting program may be permitted to exempt one, two, or three quarters of engineering graphics from the Engineering Graphics curriculum or one quarter of engineering drawing from the Architectural Engineering Technology curriculum at Greenville Technical College.

The following steps should be taken by vocational school students who plan to apply for exemption from engineering graphics or engineering drawing courses.

1. By the middle of your senior year ask your instructor or counselor to contact the Technical Division counselor at GTEC and set up an appointment for you to make a personal visit.

2. Arrangements will be made by the GTEC counselor for you to meet the Technical Division chairman, the department heads and to visit the drafting labs while classes are in session.

3. Your counselor can make arrangements for you to take the placement test administered by GTEC either at your school or at GTEC.

4. The GTEC technical division counselor will evaluate your test and contact you to arrange for an interview.

5. Providing that you have met the general entrance requirements you will need a recommendation from your instructor for advanced placement. (This will be sent directly to the department head).

6. You will need an Employability Profile. (This will be sent directly to the department head by your instructor).

7. You will need a portfolio of your drawings either originals or prints. (Bring this with you when you are called for an interview with the GTEC department head).

GREENVILLE TECHNICAL COLLEGE
ENGINEERING GRAPHICS DEPT.
P. O. BOX 5616 STA. "B"
GREENVILLE, S. C. 29606
TELEPHONE, 242-3170 EXT. 253

EMPLOYABILITY PROFILE

Occupation: Drafting

SKILLS PROFICIENCY RATING

NAME _____
Last First

ADDRESS _____ PHONE _____

TOWN, STATE, ZIP _____

EVALUATOR _____ TITLE _____ DATE _____

RATING LEVELS:
1. Instruction Not Received
2. Needs More Instruction
3. Satisfactory
4. Outstanding

	1	2	3	4
BASIC TECHNIQUES				
Use & care of instruments & materials				
Alphabet of lines				
Lettering				
Use of scales				
GEOMETRIC CONSTRUCTIONS				
Basic constructions				
Basic applications				
MULTIVIEW DRAWINGS				
Orthographic projection				
Major views				
Selection of scales, sheet size, views				
DIMENSIONING				
Methods				
Rules				
PRECISION DIMENSIONING				
Standard fits and limits				
Tolerances				
Surface finishes				
SPECIAL VIEWS				
Full and half section, other sections				
Primary and double auxiliary views				

	1	2	3	4
FASTENERS				
Specification and representation				
Kinds and classifications of threads				
Springs				
WELDING				
Standards and symbols				
Application				
PRODUCTION DRAWING				
Assembly and detail				
Layout and design				
Bills of Materials, standard notes				
Revisions and related forms				
Detailed assembly				
DETAILED DRAWING - SPECIALIZED				
Casting and pattern				
Machine				
Stamping				
Welding				
Exploded view				
PICTORIAL DRAWING				
Isometric				
Oblique Projection				
Perspective				
TECHNIQUES IN INK				
Line work				
Lettering				
SKETCHING REPRODUCTION				
Prints				
Sepia				
Other				
RELATED INFORMATION				
Time cards and clock				
Time sheets				
Drawing no. and part no. system				
REFERENCES				
Machinery's Handbook				
Architectural Handbook				
Industrial catalogs				

	1	2	3	3
BASIC MATH INCLUDING METRIC SYSTEM				
Fractions and decimals				
Volumes and arms				
Weights				
Basic slide rule				
SPECIAL PROJECTS (LIVE WORK)				
Mechanical				
Electrical				
Construction				
Architectural				
Graphs & charts				
GEARS AND CAMS				
Nomenclature and profiles				
Introduction to formulae ratios				
Bearings				
OTHER DRAFTING AREAS				
Architectural				
Structural				
Plumbing, heating and air conditioning				
Electrical and electronic				
Map and topographical				
PRECISION DIMENSIONING				
Positional and form tolerances (true position)				
Maximum Material Condition				
Numerical control				
APPLYING FOR A JOB				
Appearance				
Attitude and feeling				
Filling out applications				
Resume				
What not to do				
References				
Interview Know-How				

COMMENTS

ATTITUDES, BEHAVIOR, AND WORK TRAITS

EVALUATION: Please draw circle around numbers that are most appropriate.

RELATIONSHIP WITH OTHERS
1. Unable to determine at this time
2. Has difficulty with others
3. Gets along satisfactorily
4. Exceptionally well accepted

COOPERATION
1. Unable to determine at this time
2. Generally not cooperative
3. Generally cooperative
4. Exceptionally cooperative

COURTESY
1. Unable to determine at this time
2. Poor attitudes, needs improvement
3. Generally courteous
4. Exceptionally courteous and considerate

DEPENDABILITY
1. Unable to determine at this time
2. Needs constant follow-up
3. Generally accepts responsibility
4. Exceptionally reliable

INITIATIVE
1. Unable to determine at this time
2. Never initiates action
3. Seldom needs prodding
4. Exceptionally good "self starter"

JUDGMENT
1. Unable to determine at this time
2. Often uses poor judgment
3. Usually makes the right decision
4. Above average in making decisions

SELF CONTROL
1. Unable to determine at this time
2. Tends to be excitable
3. Well balanced
4. Exceptionally well balanced

CONCENTRATION
1. Unable to apply self to job at hand
2. Concentration fluctuates
3. Satisfactory concentration level
4. Highly satisfactory

ADAPTABILITY TO NFW JOB TASKS
1. Cannot adjust to new assignment
2. Has difficulty adjusting
3. Adjusts adequately
4. Adjusts well to new assignments

MOTIVATION IN OCCUPATIONAL AREA
1. Unable to determine at this time
2. Lacks motivation
3. Average interest and application
4. Highly motivated

ADAPTABILITY
1. Unable to determine at this time
2. Has difficulty in adapting
3. Usually accepts change
4. Self reliant, imaginative

DEXTERITY REQUIREMENTS FOR THE OCCUPATION
1. Unable to determine at this time
2. Prognosis for success is poor
3. Is well suited. Shows potential
4. Highly suited to needs of occupation

CRAFTSMANSHIP AND SKILLS
1. Unable to determine at this time
2. Substandard work
3. Average performance
4. High standards of performance

EFFICIENCY AND PRODUCTION
1. Unable to determine at this time
2. Often wastes time and effort
3. Makes effort to work effectively
4. A steady and productive worker

SAFETY

1. Unable to determine at this time
2. Lacks genuine concern for safety
3. Satisfactory practice of safety
4. High regard for safety requirements

WRITTEN PERFORMANCE

1. Unable to determine at this time
2. Work is selfom good
3. Work is generally good
4. Work is consistently good

TOLERANCE

1. Cannot tolerate many obstacles
2. Has difficulty with obstacles
3. Generally sticks to job
4. Sticks to job in face of obstacles

CONSISTENCY OF WORK BEHAVIOR

1. Very unstable work behavior
2. Generally more erratic than not
3. Showed moderately steady work behavior
4. Showed steady work behavior

TUITION SCHOLARSHIP

Greenville Technical College is proud to offer tuition scholarships in each of the Articulation Grant programs: Machine Tool Technology, Industrial Electricity, and Engineering Graphics Technology. These scholarships were suggested at an Articulation Grant Advisory Committee meeting and hardily approved by the Greenville Technical College administration. It is hoped their inception will stimulate interest in continuing quality education and training in these fields.

The Donaldson, Enoree, and Foothills Vocational Centers will each select their most outstanding and/or worthy student in their drafting, electricity, and machine shop programs. Wade Hampton High School will select a student from their electricity program. The three scholarship students from each center will receive one quarter of tuition free study at Greenville Technical College. After their first quarter, each student may receive an extension for another quarter based upon review and approval by his or her instructors and department head.

After the selection of the students by their instructors, the director or principal of each school should send a copy of all the names to the heads of the Industrial and Technical Divisions, Mr. J.D. Warren and Mr. Les Caraway. This is necessary to insure the tuition waiver be available when the student begins.

GUIDANCE INFORMATION FORM

This form was designed to supply feedback to guidance counselors, instructors, and administrators. It will be sent by the Greenville Technical College department involved to the vocational center each time there is a horizontal line of asterisks. The information on the form will supply data to evaluate our effectiveness and suggest continuation or change in our procedures.

+ + + +

ENGINEERING GRAPHICS

ARTICULATION STUDENT'S PROGRESS

Your student, _____, from _____

Vocational Center has exempted EGT _____, _____, _____, and may

(conditionally, unconditionally) enroll in EGT _____ (quarter ____).

This placement was based on

_____portfolio

_____employability profile filled out by _____

_____vocational instructor's recommendation

Date of evaluation _____

* *

The student at mid-term has been re-evaluated and is

_____progressing satisfactorily

_____moved back to level of competence (may be able to finish quarter's work, may have to take Incomplete)

_____ _____

Student's signature Instructor's signature

Date _____

* *

The student at the end of the first quarter of work

_____successfully completed EGT_____(grade_____) on _____(date).

_____received an incomplete

_____dropped out before the end of the quarter because of _____

* *

Student's status at the end of the first year of work - _____

_____

_____

I GIVE MY PERMISSION FOR THE INFORMATION ON THIS SHEET TO BE RELEASED TO GREENVILLE COUNTY SCHOOL SYSTEM.

DATE _____ LEGAL SIGNATURE _____ SIGNATURE OF PARENT IF UNDER 18 _____

ARTICULATED DRAFTING UNITS

FIRST QUARTER

1. Instrument Drawing (One View)
2. Lettering
3. Geometric Construction
4. Sketching and Shape Description
5. Dimensioning
6. Reproduction and Control of Drawing
7. Multiview Projection

SECOND QUARTER

8. Section Views
9. Auxiliary Views
10. Revolutions
11. Screw Threads and Fasteners
12. Isometric Drawings
13. Oblique Drawings
14. Intersections and Developments

THIRD QUARTER

15. Shop Processes
16. Working Drawings

EGT 111

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
1.0 Instrument Drawing (One View)		
1.1 Demonstrate the use of drafting instruments	Given a drafting assignment to do on the drafting board where instruments and other basic drafting equipment is necessary	To the instructors' satisfaction
1.2 Do the assigned one view drafting problems	Drawings will be drawn to scale using the proper pencils on the assigned sheet size and title block layout. Drawing will be centered on the sheet.	ANSI Standards will be used to the instructors' satisfaction
1.3 Letter the necessary notes on the drawing and in the title block	Use the proper pencil to get dark, sharp lettering	It must be dark enough to make a good readable reproduction
2.0 Lettering		
2.1 Perform legible lettering exercises (letters, numbers, fractions symbols)	Drafting standards and handout examples will be followed. Proper number of strokes and direction of stroke must be used.	Lettering must be easy to read, reproducible and not more than a 5 variation away from verticle. Spacing between letters must have equal area within a 5% variation. Spacing between sentences must be uniform using two letter heights as the optimum.
2.2 Perform lettering exercises of words, sentences, and paragraphs.		

SP-10/75

BGT 111
COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
3.0 Geometric Construction		
3.1 Bisect lines, angles and construct figures.	Use drafting instruments as required to do the problems on the handout sheet or as assigned by instructor.	Bisected lines must measure within a tolerance of 1/64". Angles must be within 1/2 constructed figures must be to instructors' satisfaction.
3.2 Draw regular polygons.	Same as above.	To instructors' satisfaction.
3.3 Draw tangents to arcs, lines and circles.	Same as above.	Arcs and lines must be tangents to the instructors' satisfaction.
3.4 Make drawings that show the above techniques applied.	Complete one view drawings with points of tangency indicated.	To instructors' satisfaction.

72

SP-10/75

EGT 111

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
4.0 Sketching and Shape Description		
4.1 Illustrate the six principle views used in describing the shape of an object graphically.	On paper using drafting instruments	100%
4.2 Illustrate the three principles dimensions.	Make 3 view drawings and label on each view length, width and/or depth as appropriate.	100%
4.3 Convert an isometric picture drawing on grid paper to three view sketches on grid paper.	Use the problems assigned in the text and do them on the grid paper provided.	All three views must be shown to scale in their proper positions.
4.4 Sketch 3 views of assigned objects on grid paper.	Problems assigned in text shows 2 views on grid paper, the third one is to be added.	The 2 views as shown plus the 3rd view must be shown in its proper position to scale with all necessary lines.
4.5 Add missing lines to complete the shape description of objects.	3 view problems are given with missing lines.	All lines must be added before assignment is complete.

30-10/78

EGT 111

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
5.0 Dimensioning		
5.1 Demonstrate an understanding of how and where shape dimensions are placed on a drawing.	Problems will be given which show undimensioned views of a part. The student will measure the shape and place the dimensions on the view.	To the satisfaction of the instructor.
5.2 Demonstrate an understanding of how and where size dimensions are placed on a drawing.	Same as above, except that some additional information may be partially given i.e., thread class.	The same as above.
5.3 Demonstrate ability to completely define a part by selecting the views necessary to completely and correctly dimension it.	Both textbook problems and layout drawings will be used. The student must prepare the drawings and dimension them using drafting instruments.	To the satisfaction of the instructor: ANSI Y14 will serve as a standard for dimensioning practices. (Emphasis will be placed on linework, lettering, proper placement of dimensions, and choice of optimum method of dimensioning.)
6.0 Reproduction and Control of Drawing		
6.1 Demonstrate an understanding of a drawing identification system.	He will provide drawing and/or part number identification for a set of detail and assy drawings (See Para 5.2 & 5.3).	Drawing numbers must be chosen so as to avoid duplication, to the satisfaction of the instructor.
6.2 Demonstrate the ability to make a diazo print from a tracing.	Given a tracing, he will properly and safely operate a diazo print machine.	To instructor's satisfaction using both vellum and polyester base drawings
6.3 Demonstrate an understanding of the preparation and use of brownline drawings.	He will prepare a brownline of a tracing using similar technique as 6.2 above.	Ditto

SF-10/75

EGT 111

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
7.0 Multiview Projections		
7.1 Make 3 view sketches.	To be made on 8 1/2 X 11 cross section paper from Isometric Sketching Problems on handouts or the ones in the textbook.	All three principal views must be in their proper positions and sketching must be to the instructors' satisfaction
7.2 Do the assigned Missing View Problems.	Given: 2 orthographic views to copy on cross section paper and the third view.	Same as above.
7.3 Do the assigned Missing Line Problems.	Given: 3 orthographic views with lines missing--Lines to be sketched in. May be either on a handout sheet or problems in the textbook.	All lines must be shown.

EGT 121

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
8.0 Section Views		
8.1 Demonstrate a proficiency in the correct terminology relating to section views.	Written	Pass as a written test.
8.2 Make section drawings of cylindrical shaped objects.	Apply good standard sectioning principles to simple cylindrical shaped objects. Drawings will consist of one circular view and a full or half section as assigned by instructor.	Problems will be drawn until they show clearly to the instructor's satisfaction that the principles of sectioning are being applied in a neat and orderly manner.
8.3 Make section drawings of irregular shaped objects.	Same conditions as above.	Problems will be assigned until they are done to instructor's satisfaction.
8.4 Make section drawings showing revolved sections and broken-out sections.	Problems will be assigned from textbook or handouts.	To instructor's satisfaction.

SP-10/75

EGT 121

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
9.0 Auxiliary Views		
9.1 Demonstrate a proficiency in the use of correct terminology relating to auxiliary views.	Written	Make a passing grade on a written test.
9.2 Construct primary auxiliary view of objects with symmetrical planes	Problems showing orthographic views of objects will be given from which the auxiliary view will be drawn.	To the instructor's satisfaction.
9.3 Construct auxiliary view of objects that have asymetrical planes.	Textbook problems or handout sheets will be provided.	To the instructor's satisfaction.
9.4 Construct auxiliary views of objects with curved surfaces.	Problems to be assigned.	Same as above.

SP-10/75

EGT 121

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
10.0 Revolutions		
10.1 Construct a three view drawing of an object with a revolution of the given front view about an axis perpendicular to the frontal plane.	Given a 3-view drawing and direction and/or degree of revolution.	100% correct projection methods I.01 accuracy answers line quality.
10.2 Same as above except revolve the right view about an axis perpendicular to profile plane.	"	"
10.3 Same as above with top view revolved about axis perpendicular to horizontal plane.	"	"
10.4 Successive revolution	"	"
10.5 Revolve a point about a normal axis.	Given axis, point and degrees of revolution.	1. To I.01 accuracy 2. Answers, line quality 3. And example
10.6 Revolve a point about an inclined axis.	"	"
10.7 Revolve a point about an oblique axis.	"	"
10.8 Revolve a line about as normal, inclined or oblique axis.	Given axis, line and degrees or position criteria for revolved line	1. To I.01 accuracy 2. To answer standard of line. 3. By example 4. Using revolution & auxiliar vie methods as required.

SF-10/75

EGT 121

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
11.0 Screw Threads & Fasteners		
11.1 Demonstrate knowledge concerning terminology used with screws, bolts, nuts, threads, and fasteners.	Writ	Make a passing grade on a written and/or performance test.
11.2 Make drawings that show simplified, Schematic and detailed threads complete with notes and dimensions.	Problems as assigned by instructor.	To instructor's satisfaction.
11.3 Make drawings that show square head and hex head bolts and nuts assembled. Complete with notes, and dimensions.	Problems assigned by instructor.	To instructor's satisfaction.

SP-10/78

EGT 121

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
12.0 Isometric Drawing		
12.1 Draw an isometric drawing of a cube.	Given cube size and instruction to use principles of isometric construction.	To instructor line quality and accuracy standards ansi lines and ±.01 accuracy to isometric form.
12.2 Draw ellipse in face of cube using template.	Given cube size and circle size.	"
12.3 Draw ellipse in each face of cube using approximate four-center ellipse method.	Given cube size and circle size.	"
12.4 Draw an isometric view of object that has inclined planes and angles.	Given object in 3-view, oblique or physically.	"
12.5 Draw an isometric of an object that has an irregular curved surface.	Given object, 3-view drawing or pictorial.	"
12.6 Draw and dimension completely an isometric view of an object having angles and circles.	Given object or pictorial of object.	"

EGT 121

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
13.0 Oblique Drawing		
13.1 Draw an oblique view of a cube using oblique pictorial method.	Given size of cube and angle of sight, percent of depth protection and viewing direction (cabinet, cavalier, etc.)	Ansi line quality ±.01 accuracy to oblique form.
13.2 Draw oblique view of object having angles and inclined surfaces.	Given object, 3-view of object or pictorial of object.	"
13.3 Draw oblique view of object having circular planes or features.	"	"
14.0 Intersection and Developments		
14.1 Construct prisms and cylinders by parallel line development.	Assigned problems to be done on the drafting board using standard drafting techniques.	To the instructors' satisfaction
14.2 Construct pyramids and cones by radial line developments.	Assigned problems to be done on the drafting board using standard drafting techniques.	When cut out and folded or rolled they must form into the intended shape.
14.3 Construct transition pieces by triangulation.	Same as above.	Pieces must join together to form the intended shape when cut out, rolled, folded and stuck together.

18

SF-10/75

EGT 131

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
15.0 Shop Processes		
15.1 Make working drawings of machine parts	Parts are to be machined from castings. Correct terminology must be shown in the notes and specifications.	To the instructors' satisfaction
15.2 Make working drawings of fabricated parts	Parts are to be shown assembled by welding.	To the instructors' satisfaction
15.3 Take a test on terminology relating to shop processes	Written test to cover terms, notes, machine tools, manufacturing processes, dimensioning, techniques and applications, etc.	85%

EGT 131

COURSE

GREENVILLE TECHNICAL COLLEGE

CONCEPT/PERFORMANCE	CONDITIONS	CRITERIA
16.0 Working Drawings		
16.1 Demonstrates an understanding of a detail part drawing	The student will prepare part drawings from problems assigned by the instructor.	Each drawing must include all information necessary to properly fabricate the parts to the satisfaction of the instructor.
16.2 Demonstrate an understanding of assembly drawings and the relationship that detail and assembly drawings have to each other.	Problems will be given in either of two formats: a) Exploded pictorial drawings with dimensions and materials noted b) Cross sectioned assembly layout drawings with design parameters defined.	The student must determine which part require detail part drawings, and the must prepare these drawings as noted above. He then must prepare all necessary sub-assembly and assembly drawings which will include a listing of parts in family-tree order.
16.3 Advanced student work: Demonstrate an understanding of the responsibilities of a layout draftsman.	The advanced students will be appointed as job leaders and will be assigned one or more detail draftsmen. The job captain will prepare a layout of a more complicated device from a problem assigned by the instructor. When the layout is complete, he will assign detail drawings to the draftsmen and supervise their work.	The layout will be completed to the satisfaction of the instructor, and will include a sequenced assembly procedure. The responsibility for handing in a complete drawing package will be on the job leader. (The job leader will check all detail and assembly drawings for completeness and correctness.

SP-10/75

INDUSTRIAL ELECRICITY ARTICULATION

Greenville Technical College GREENVILLE, SOUTH CAROLINA · 29606

84

The work upon which this publication is based was performed pursuant to Grant G00-75-00453 with the U. S. Office of Education, Department of Health, Education, and Welfare.

The project presented or reported herein was performed pursuant to a Grant from the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education and no official endorsement by the U. S. Office of Education should be inferred.

TABLE OF CONTENTS

Overview---------- 1

Flow Chart---------- 2

Tuition Scholarships---------- 3

Placement Tests---------- 4

Guidance Form---------- 5, 6

Course Objectives---------- 7 - 38

GREENVILLE TECHNICAL COLLEGE - ARTICULATION GRANT

INDUSTRIAL ELECTRICITY

MAY, 1976

OVERVIEW

The vocational school graduate will have the opportunity to exempt some of the Industrial Electricity courses at Greenville Technical College that are repetitious of his vocational school studies. The student may exempt a course after attaining an acceptable proficiency level on the appropriate placement test. Each placement test may be taken once a quarter with a limit of one retake during another quarter.

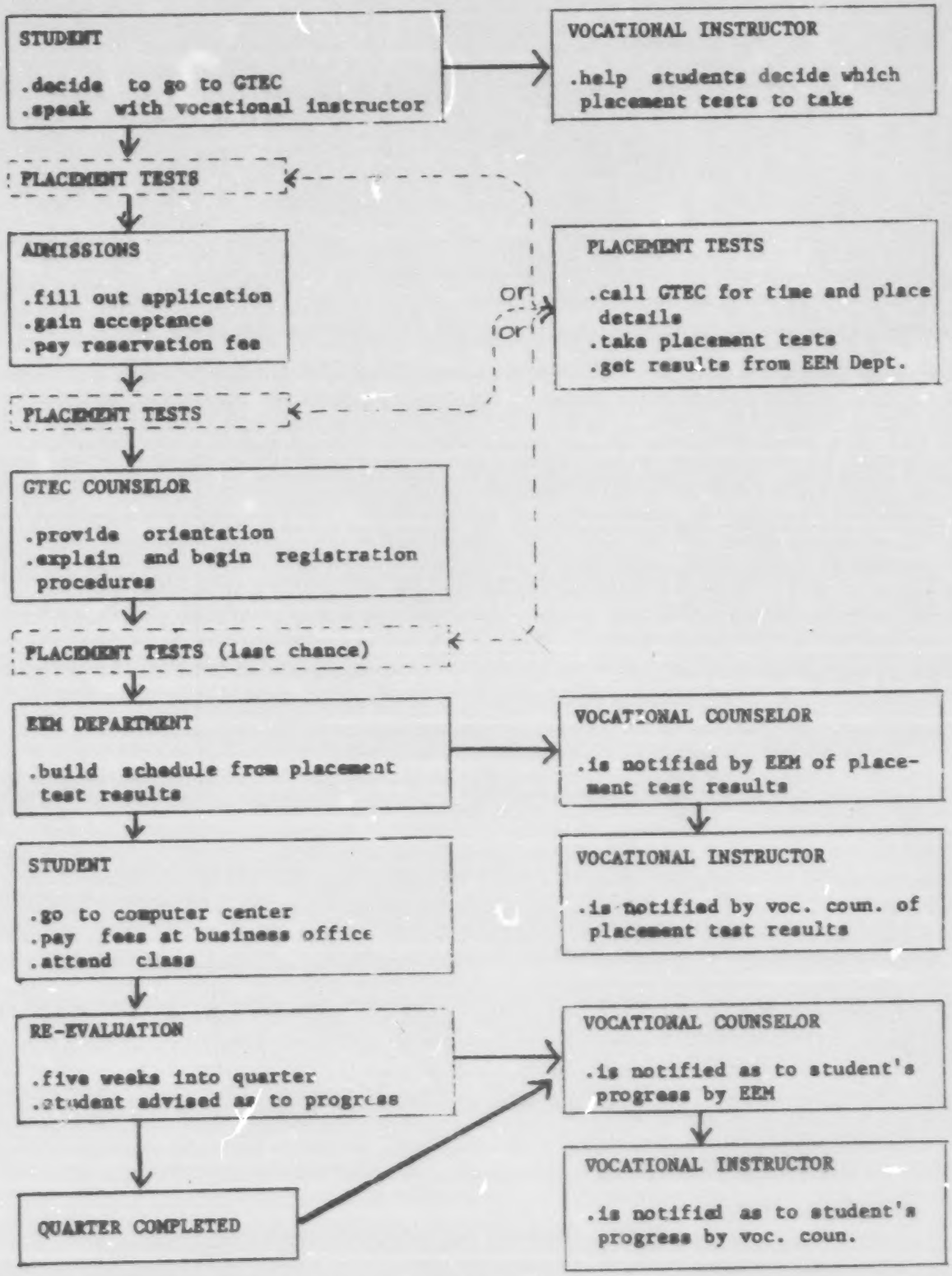
The course objectives that are covered in each placement test will be given to each vocational electricity instructor. They are also available for inspection at GTEC's Industrial Electricity department.

The first placement tests for exemptions will begin during the regular registration days just before fall quarter. They will continue to be offered during each pre-registration time in a testing center at Greenville Technical College. Mr. J.D. Warren, Industrial Division Chairman, or the Industrial Electricity department may be contacted for details.

Specifically, the following courses will be considered for exemption upon completion of the placement test:

Course Title	Course Number
Applied Electricity	EEM 101
Residential Electricity-Codes and Ordinances-A	EEM 345
Residential Electricity-Codes and Ordinances-B	EEM 346
DC Electricity	EEM 113
AC Electricity	EEM 123
AC Machines and Devices	EEM 127
Electrical Control Circuits	EEM 136
Electrical Math I	MAT 115
Electrical Math II	MAT 126

PROPOSED FLOW CHART OF ARTICULATION STUDENTS - EEM



TUITION SCHOLARSHIP

Greenville Technical College is proud to offer tuition scholarships in each of the Articulation Grant programs: Machine Tool Technology, Industrial Electricity, and Engineering Graphics Technology. These scholarships were suggested at an Articulation Grant Advisory Committee meeting and hardily approved by the Greenville Technical College administration. It is hoped their inception will stimulate interest in continuing quality education and training in these fields.

The Donaldson, Enoree, and Foothills Vocational Centers will each select their most outstanding and/or worthy student in their drafting, electricity, and machine shop programs. Wade Hampton High School will select a student from their electricity program. The three scholarship students from each center will receive one quarter of tuition free study at Greenville Technical College. After their first quarter, each student may receive an extension for another quarter based upon review and approval by his or her instructors and department head.

After the selection of the students by their instructors, the director or principal of each school should send a copy of all the names to the heads of the Industrial and Technical Divisions, Mr. J.D. Warren and Mr. Les Caraway. This is necessary to insure the tuition waiver be available when the student begins.

PLACEMENT TESTS

Course objectives for each course offering a placement test are in this booklet and on file in the Industrial Electricity department at Greenville Technical College. Each vocational instructor may review these objectives and advise his students as to which placement tests would be most appropriate to take.

The placement tests will be offered at Greenville Technical College during the registration days immediately preceding each quarter. They will begin just before fall quarter, 1976, and be offered each quarter thereafter.

It is the student's responsibility to find out the location of the testing center and schedule him/herself so that all the desired placement tests may be taken in the time the center is open. The Industrial Electricity department and Mr. J.D. Warren, Industrial Division Chairman, may be called for details. It is planned that the guidance counselors at TEC will also know specific details.

Tentative schedules for registration (and therefore the placement tests) for the next year are as follows:

Fall, 1976 - Sept. 1,2,3	Winter, 1976 - Nov. 29,30
Spring, 1977 - March 1,2	Summer, 1977 - May 24,25

It is hoped that through the urging of the vocational instructors that each vocational student will take full advantage of these placement tests.

GUIDANCE INFORMATION FORM

This form was designed to supply feedback to guidance counselors, instructors, and administrators. It will be sent by the Greenville Technical College department involved to the vocational center each time there is a horizontal line of asterisks. The information on the form will supply data to evaluate our effectiveness and suggest continuation or change in our procedures.

+ + + +

INDUSTRIAL ELECTRICITY

ARTICULATION STUDENT'S PROGRESS

Your student, _____, from _____

Vocational Center has exempted the following courses:

EEM_____, MAT_____.

The student will be enrolling in the following EEM courses next quarter:_____, MAT course:_____.

This placement was based on

_____placement test score(s)

_____vocational instructor's recommendation

_____interview requested by _____and conducted by _____

The student

_____readily accepted placement

_____requested a lower placement, outcome _____

_____requested a higher placement, outcome _____

Date exemption(s) granted _____

* * * *

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? SC, C, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 Special Purpose Outlets	
1.1 Given a blueprint, recognize special-purpose outlet designations.	
1.2 Given nameplate reading, or specs, or equipment, calculate the load to be connected to a special outlet and use configuration chart for selection of outlet.	
1.3 Illustrate the proper grounding connections when using armored cable and nonmetallic-sheathed cable.	
1.4 Illustrate the proper connections to insure grounding continuity between a grounded outlet box and the grounding circuit of the receptacle.	
Concept 2.0 Special Purpose Outlets for a Water Pump and Heater	
2.1 List the basic requirements for a motor to be used on deep-well jet pump.	
2.2 Given the rating of a motor, calculate the conductor size and overcurrent protection required for the pump circuit.	
2.3 List the basic steps in various water heating methods which can be used.	
2.4 Describe the operation of the water heating system, including the functions of the tank, the heating elements, and the thermostats.	
2.5 Illustrate the proper grounding connections for the water heater.	
Concept 3.0 Special Purpose Outlets for Dryers and Over Garage Door Openers	
3.1 Illustrate the proper wiring and grounding connections for large appliances based on the type of wiring met to be used.	
3.2 List the requirements for using service entrance cable to connect large appliances.	

CONCEPT/PERFORMANCE	(Sometimes) Covered or Not Covered SC, C, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
3.3 Illustrate the proper connections involved in remote control switching such as in an overhead garage door opener based on manufacturer's installation recommendations.	
3.4 Given Code tables, select the proper overcurrent protective device based on the amperage rating of the device.	
Concept 4.0 Special Purpose Outlets for Kitchen Appliances	
4.1 Interpret electrical plans and construction blueprints to determine any special installation requirements for electrical appliances.	
4.2 Given NEC table 310/16-19 and notes and based on the ratings of appliances, select proper conductor sizes for wiring installation.	
4.3 Illustrate how to ground all appliances properly regardless of the wiring method used.	
4.4 Illustrate proper wiring of 7-heat control and 3-heat control for a dual element cooking unit-heating unit. (phasing out)	
4.5 List the advantages of infinite over 7- and 3-heat control.	
4.6 Illustrate the 3 options in the installation of various types of stove and oven units: group circuit, single circuit, and load center.	
Concept 5.0 Telephone, Television, and Signal Systems	
5.1 Describe the proper precautions to prevent line voltage interference with television signals.	
5.2 Given specifications, describe the installation of outlet boxes, outlets, and provide cable or conduit to which the telephone installer will make final connections.	
5.3 Define what is meant by signal circuit.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? SC, C, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
5.4 Describe the operation of a two-tone chime and a four-tone chime with one or more extension chimes.	
Concept 6.0 Heating Systems	
6.1 List the advantages of electric heat.	
6.2 Describe the several types of electric heating systems.	
6.3 Describe the various thermostat control systems for electric heating units.	
6.4 Describe the installation of electric heaters with appropriate temperature controls according to NEC requirements.	
6.5 Interpret typical schematics provided by heating system control manufacturers.	
6.6 Describe the functions of the control devices provided in a typical system.	
6.7 Explain the principle of the thermopile and the thermocouple.	
6.8 Compare and contrast the electrical requirements for the following heating systems: oil, gas fire - water gravity, gas fire - self-contained.	
Concept 7.0 Service Entrances, Equipment, and Calculations	
7.1 Define these terms: electrical service, overhead service, service drop, and underground service.	
7.2 Describe the installation of a mast-type overhead service and an underground service.	
7.3 Discuss the NEC requirements for disconnecting the electrical service by means of a main panel and load centers.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
7.4 Differentiate between the various types of fuses and select the proper fuse for a particular installation.	
7.5 Explain the operation of fuses and circuit breakers.	
7.6 Explain the term, "interrupting capacity".	
7.7 Determine available short-circuit current using a simple formula.	
7.8 Determine the total calculated load of a residence using the methods in Article 220 of the NEC.	
7.9 Calculate the size of the service entrance conductors, including the nuetral conductor.	
Concept 8.0 Remote Control Systems for Lighting Control Circuits	
8.1 Explain the operation of the various components of a low-voltage, remote control system for lighting circuits.	
8.2 Interpret the wiring diagrams of various types of low-voltage, remote control circuits.	
8.3 Describe the installation of a low-voltage, remote control system using the proper conductors, wiring, and components according to NEC requirements.	

EEM 136 - Electrical Control Circuits - Greenville Technical College

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 Fundamentals of Controls	
1.1 Define and recognize the difference between manual, semi-automatic, and automatic controls.	
1.2 Label components of manual, semi-automatic, and automatic controls on provided diagrams.	
Concept 2.0 Control of Motor Starting	
2.1 Explain low-voltage (3 types) and line voltage starting.	
2.2 Explain 3 types of acceleration control: current limit, definite time, and voltage drop.	
2.3 Identify components for the controls of squirrel-cage, wound-rotor, synchronous and dc motors on provided wiring diagrams.	
2.4 State the purpose and give one example of each of eight types of motor protection.	
Concept 3.0 Control Components	
3.1 Identify and list the limitations of switches, breakers, contactors, and relays as motor starters.	
3.2 Given diagrams, explain the functions of the various components in different types of motor controls.	
Concept 4.0 Pilot Devices	
4.1 Explain how a pilot device functions and its location in a circuit.	
4.2 Identify seven or more pilot devices.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? SC, C or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 5.0 Control Circuit Diagrams	
5.1 Identify and explain control diagram symbols.	
5.2 Identify and explain schematic, wiring, wireless, one-line, and block diagrams.	
Concept 6.0 Development of Control Circuits	
6.1 Compare and contrast two-wire and three-wire control.	
6.2 Given a control problem, develop a control circuit to handle the problem, draw a schematic for that circuit, transfer that information into a wiring diagram, then wire the circuit with provided components. (There will be 37 such control problems to complete during the remainder of the quarter.)	
Concept 7.0 Analysis of Control Circuits	
7.1 Given a control diagram, analyse the function and relationships of component parts. (Continue to develop control circuits.)	
Concept 8.0 Maintaining Control Circuits	
8.1 Discuss the value of proper and preventative maintainence of control equipment and how to avoid the most prevalent troubles. Continue to develop control circuits.	
Concept 9.0 Troubleshooting Control Circuits	
9.1 Given electrical circuits or diagrams, locate problem(s) and correct or propose a correction for the malfunction(s). Continue to develop control circuits.	

CONCEPT / PERFORMANCE	(Sometimes) COvered or Not Covered SC, C, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 10.0 Basic Concepts of Static Control (This concept is not always covered.)	
10.1 Identify and state the function of basic logic circuit elements, and determine their appropriate function in given circuit diagrams.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 - Current	
1.1 List the fundamental atomic particles and label the parts of a model of the atom.	
1.2 Explain the role of the electron in carrying electricity and contrast it to random drift of electrons.	
1.3 Define a coulomb and explain the behavior of charged bodies in terms of Coulomb's law	
1.4 Given a diagram, label a diagram of a complete (closed) circuit and a schematic diagram of a simple circuit containing a power source, a load, a switch, and conductor wires.	
1.5 Given a diagram, label the diagram of the direction of current flow in a circuit.	
1.6 List the components of an electric circuit and compare them with those of a simple hydraulic system.	
1.7 Define an ampere as a rate of coulombs of charge per second and calculate current fronthis.	
1.8 Write the common symbols for current, charge, and time, as distinguished from standard (SI) abbreviations for their units of measure.	
1.9 Calculate measurements in power of 10, express figures in scientific notation, and convert from one metric unit to another by means of powers of 10.	
1.10 List the steps for placing and connecting an ammeter into a circuit to measure current.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
2.0 - Voltage	
2.1 Compare and contrast definitions of emf and potential difference as separate forms of the same force.	
2.2 Define and calculate voltage.	
2.3 Define voltage rise and voltage drop, and identify the symbols used to differentiate them.	
2.4 Tell how dry cells produce emf.	
2.5 Explain the process of separating charges in a battery.	
2.6 Recognize a diagram of a series and parallel connection of cells, and calculate total voltage of each.	
2.7 Tell how an opposing voltage affects total output voltage.	
2.8 Given a voltmeter and components, connect a voltmeter to load and source of a circuit and make voltage measurements.	
Concept 3.0 - Resistance	
3.1 Define resistance, the parameters that vary it, and the effects of temperature upon it.	
3.2 Given resistivity and dimensions, calculate resistance.	
3.3 Identify the classes of resistors, circuit symbols that represent them, resistor ratings, and the codes by which they are designated.	
3.4 Given an ohmmeter and components, connect an ohmmeter in a circuit and make resistance measurements.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 4.0 Measuring Voltage and Current in Series Circuits	
4.1 Define, compare, and contrast parallel and series circuits.	
4.2 State Kirchhoff's voltage law.	
4.3 Define the relation between voltage drop across a resistor and the ohmic value of its resistance.	
4.4 Given a multimeter and components, use a multimeter to measure voltage in a dc and ac circuit.	
Concept 5.0 - Relationships of Current, Voltage, and Resistance	
5.1 Tell how varying voltage or resistance in a series circuit effects current when the alternate element is held constant.	
5.2 Use Ohm's Law to calculate values and power expended in a series circuit.	
5.3 State, explain, and derive all equivalent equations for Ohm's law.	
5.4 List the effects of source internal resistance and how it can be determined.	
5.5 Define a short circuitand an open circuit, and locate each using an ohmmeter or voltmeter.	
Concept 6.0 - Parallel Circuits	
6.1 Define a parallel circuit.	
6.2 Define the relation of source voltage to parallel branches and source current to branch currents.	
6.3 State Kirchhoff's current law.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
6.4 Given two of the following, current, resistance, or voltage, calculate source and branch currents, using Ohm's law.	
6.5 Calculate total circuit resistance.	
6.6 Reduce complex circuit schematics to simple form by redrawing.	
6.7 Given a multimeter and a problem circuit, use a multimeter to troubleshoot a given parallel circuits.	
6.8 Tell how a parallel circuit is fused.	
6.9 Use variational analysis as a tool in explaining how circuit quantities interact.	
Concept 7.0 Series - Parallel Circuits	
7.1 Find missing values and apply variational analysis to explain and compute values in a series-parallel circuit	
7.2 Define the concept of voltage reference.	
7.3 Define the terms ground and floating ground.	
7.4 Given voltage supply, design a voltage divider to give desired voltage.	
7.5 Practice complex circuit reduction by redrawing.	
Concept 8.0 Magnetism and Electromagnetics	
8.1 List the properties of a magnetic field.	
8.2 State the laws governing magnetic fields.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
8.3 Define 3 types of magnetism.	
8.4 Identify types of magnetic materials.	
8.5 Tell how magnetic shielding works.	
8.6 State the magnetic domain theory.	
8.7 Distinguish between various types of magnets.	
8.8 State the relationship between electricity and magnetism.	
8.9 Label a diagram of the magnetic field around a current carrying loop and coil.	
8.10 Tell how a solenoid and a relay (mechanical and electrical) work.	
8.11 List the factors affecting flux density in an inductor.	
8.12 State and interpret Lenz's law.	
8.13 State the principles of electromagnetic induction.	
8.14 List the factors affecting generated emf.	
Concept 9.0 Mutual Induction and RL Circuits	
9.1 Define mutual induction, including the direction of the induced emf in a conductor.	
9.2 Name the units of inductance and state the rules for solving total inductance.	
9.3 Tell how mutual inductance takes place between two coils.	
9.4 Explain the behavior of an idealized RL circuit.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
9.5 Plot: a) current rise, b) resistor voltage, c) coil voltage, d) decay of current, e) collapse of flux lines, f) decay of voltage in an RL circuit from opening of the switch (time T=0) until steady state.	
9.6 Define the RL constant.	
9.7 Make calculations of energizing and decaying RL circuits using the universal time-constant chart.	
Concept 10.0 Capacitance	
10.1 Describe the different kinds of capacitors and how they charge and discharge.	
10.2 Tell how a capacitor charges and discharges in an RC circuit.	
10.3 Define capacitance.	
10.4 Define the unit of capacitance in terms of farads and micro-farads.	
10.5 Calculate capacitance from type and size of dielectric.	
10.6 Calculate the value of total capacitance for capacitors in series, parallel, and series-parallel	
10.7 Define and calculate the RC time constant	
10.8 Solve RC time-constant problems, using the universal time-constant chart.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 The Synchronous Motor and Electrodynamometer (Intro.)	
1.1 Explain how to connect a three-phase synchronous motor.	
1.2 Demonstrate how to connect the electrodynamometer.	
Concept 2.0 Split-Phase Induction Motor	
2.1 Explain or disassemble and reconstruct a split-phase motor.	
2.2 Measure the resistance of split-phase windings.	
2.3 Explain the basic motor wiring connections of a synchronous motor.	
2.4 Given an ampmeter, measure the starting and operating characteristics of the split-phase motor under load and no-load conditions.	
2.5 Calculate the power factor and efficiency of the split-phase motor.	
Concept 3.0 Capacitor Start and Run Motors	
3.1 Given an ampmeter, measure the starting and operating characteristics of the capacitor start motor.	
3.2 Compare the capacitor-start motor's starting and running performance with the split-phase motor's.	
3.3 Explain or disassemble and reassemble a capacitor run motor.	
3.4 Determine the capacitor-run motor running and starting characteristics.	
3.5 Compare the capacitor-run motor running and starting performance with the split-phase and capacitor start motors.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 4.0 Universal Motor	
4.1 Explain or disassemble and reconstruct a universal motor.	
4.2 Given appropriate meters and equipment, determine a universal motor's no-load an full- load characteristics while on ac.	
4.3 Given appropriate meters and equipment, determine a universal motor's no-load and full-load characteristics while on dc.	
Concept 5.0 Repulsion-Start and Induction-Run Motors	
5.1 Explain or disassemble and reconstruct a repulsion start - induction run motor.	
5.2 State the properties of the repulsion start - induction run motor under no-load and full-load conditions.	
5.3 Explain the construction of the three-phase wound rotor induction motor.	
5.4 State the effect of the variation of the revolving field and rotor speed upon the voltage induced in the rotor of a wound rotor induction motor.	
Concept 6.0 Wound Rotor Induction	
6.1 Given appropriate meters and equipment, determine the starting characteristics of the wound rotor induction motor.	
6.2 Given an ampmeter, measure and record the rotor and stator currents at different motor speeds in a wound rotor induction motor.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 7.0 Squirrel Cage Motor	
7.1 Explain or disassemble and reconstruct a three-phase squirrel cage motor.	
7.2 Given an ampmeter, determine the squirrel cage induction motor's no-load and full-load characteristics.	
Concept 8.0 The Synchronous Motor	
8.1 Explain or disassemble and reconstruct a three-phase synchronous motor.	
8.2 Demonstrate how a synchronous motor can act as a variable inductance or capacitance.	
8.3 Obtain the dc current versus ac current characteristics curve for the synchronous motor.	
8.4 Given an ampmeter and tachometer determine the full-load characteristics of the synchronous motor.	
8.5 Given a dynamometer, determine the pull-out torque of the synchronous motor.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 Underwriters and Codes	
1.1 State the function and purpose of UL.	
1.2 State the function and purpose of NEC	
1.3 State the function and purpose of local electrical inspector and ordinances.	
Concept 2.0 Basic Principles and Measurements	
2.1 Use Ohm's Law to calculate values (amps, ohms, volts, watts) in a circuit.	
2.2 State and contrast definitions of conductance and resistance.	
Concept 3.0 AC and DC; Power Factor; Transformers	
3.1 Compare and contrast the generation, distribution, and usage of ac and dc.	
3.2 Explain power factor - cause and correction.	
3.3 Define alternation, cycle, hertz, phase, poly-phase, and frequency.	
3.4 Given all values except one, solve for each element of the power formula in ac and dc circuits.	
3.5 Explain how a transformer works and where it is used.	

EEM 101 - Applied Electricity - Greenville Technical College

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 4.0 Basic Devices	
4.1 Recognize differences between incandescent and fluorescent lights.	
4.2 Recognize various wiring devices: switches, receptacles, and lighting outlets	
4.3 Recognize various types of fuses and circuit breakers.	
4.4 Explain the reason for, location of, and function of fuses and circuit breakers	
Concept 5.0 Circuits	
5.1 Define branch circuit and feeder	
5.2 Recognize series and parallel circuit diagrams	
Concept 6.0 Types and Sizes of Wires	
6.1 Explain how to determine wire sizes with an American wire gauge.	
6.2 Given load, ambient temperature, overcurrent protection, or use requirements, match size and type of wire and insulation appropriate for usage	
Concept 7.0 Selection of Proper Wire Sizes	
7.1 Given current, distance, or wire size, calculate voltage drop and determine type and size of conductor to overcome the drop.	
Concept 8.0 Wire Connections and Joints	
8.1 Given the devices or pictures of the devices, recognize and select proper application of UL listed splicing and terminating devices	
8.2 Recall the restrictions on use of solder for service and grounding requirements.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 9.0 Theory and Importance of Grounding	
9.1 State the purpose of grounding electrical equipment and systems and the consequences of the lack of good grounding.	
9.2 State possible materials used for grounding, their color, and their installation.	
9.3 Recognize proper and inferior basic grounding installations in light of NECode requirements.	
9.4 Differentiate between a ground fault and short circuit.	
9.5 State when G. F. C. I. (Ground fault circuit interrupter) should be used.	
Concept 10.0 Outlet and Switch Boxes	
10.1 Recognize and match usage of outlet boxes, junction boxes, and switch plates.	
10.2 Use NEC table 370-6A & B to determine size of boxes needed.	
Concept 11.0 Different Wiring Methods	
11.1 State the usage of non-metallic sheath cable and armored cable	
11.2 Given pictures or actual material, identify and list the advantages of and fittings used with the four basic types of conduit	
11.3 Given pictures or actual material, identify and list the advantages of and fittings used with the two basic types of flexible conduit.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 12.0 Adequate Wiring	
12.1 Explain the difference between minimum-standard and adequate wiring and lighting.	
Concept 13.0 Service Entrance and Branch Circuits	
13.1 List the main considerations in choosing electrical service and equipment for residential occupancies.	
13.2 Explain the usage of the Code demand factor tables for determining size of service and service entrance conductors	
13.3 Define branch circuit and feeder	
Concept 14.0 Good Lighting	
14.1 Define lumen and footcandle	
14.2 Compare suitability of various types of lighting in different occupancies.	

EEM 345 - Residential Wiring (Part A) - Greenville Technical College

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 General Information for Electrical Installations	
1.1 Explain the purpose of (electrical) blueprints	
1.2 Given a specific set of specifications, explain how specifications are used in estimating costs and making electrical installations.	
1.3 Explain why symbols and notations are used on electrical drawings.	
Concept 2.0 Electrical Symbols and Outlets	
2.1 Identify and explain the electrical outlet symbols used in the plans of the single family dwelling.	
2.2 Identify the types of outlets, boxes, fixtures, and switches used in the residence.	
2.3 Explain the methods of mounting the various electrical devices used in the residence.	
Concept 3.0 Determining the Number of Circuits Required	
3.1 Given the dimensions of a dwelling, Calculate the occupied floor area of a dwelling.	
3.2 Given floor area or dwelling's dimensions, determine the total load requirements in amperes for general lighting.	
3.3 Given floor area or dwelling's dimensions, determine the minimum number of lighting branch circuits required.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
3.4 Recall the number of small appliance circuits required in a residence.	
3.5 Given the NECode and the floor area or dwelling's dimensions, use the NECode (Article 210 & 220) to determine the basic requirements for the various branch circuits in a dwelling.	
Concept 4.0 Conductor Sizes and Types	
4.1 Define the terms used to size and rate conductors.	
4.2 Describe the types of cables used in the majority of residential installations.	
4.3 List the basic installation requirements for wiring cables.	
4.4 Describe the uses and installation requirements of electrical metallic tubing and rigid metal conduit.	
4.5 Describe the requirements for grounding a service entrance.	
Concept 5.0 Switch Control of Lighting Circuits	
5.1 Distinguish between the various types of toggle switches for lighting circuit control.	
5.2 Use Ohm's law to calculate circuit load and select a switch with the proper rating for the specific installation conditions.	
5.3 Describe the operation that each type of toggle switch performs in typical lighting circuit installations.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
5.4 Demonstrate the correct wiring connections for each type of switch per Code requirements.	
Concept 6.0 Bedroom Lighting Branch Circuits	
6.1 Explain the difference in determing circuit wattage requirements in residential versus other occupancies.	
6.2 Given information from the residence plans, specifications, and Code requirements, draw a cable layout and a wiring diagram.	
6.3 Select the proper wall box for a particular installation.	
6.4 Explain how wall boxes can be grounded.	
6.5 List the requirements for the installation of fixtures in clothes closets.	
6.6 Explain the operation and connections of ground-fault circuit interrupters (GFCI).	
Concept 7.0 More Bedroom Lighting Branch Circuits	
7.1 Given a cable layout, draw a wiring diagram.	
7.2 Explain how outlets in one room can be connected to a circuit in another room.	
Concept 8.0 Bathroom and Passage Lighting Branch Circuits	
8.1 Connect recessed fixtures, both prewired and nonprewired types, according to Code regulations.	
8.2 Recall the separation regulations for installation of recessed fixtures.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
8.3 List the equipment grounding requirements for bathroom installations.	
Concept 9.0 Lighting Branch Circuit for Halls and Front Entrances	
9.1 Install 3-wire circuits, making the proper connections to prevent overloads.	
9.2 Demonstrate the proper methods of installing pilot light switches in circuits.	
9.3 Explain how outdoor lighting can be installed using UF type underground cable.	
9.4 Describe two methods of bringing conduit into a residence from an external location.	
9.5 Define a wet location.	
Concept 10.0 Lighting Branch Circuits for Kitchen and Rear Entry and Small Appliance Circuits for Kitchens	
10.1 List three methods of installing under-cabinet lighting fixtures.	
10.2 Explain the use of exhaust fans for humidity control.	
10.3 Install split circuit (two-circuit) convenience receptacles.	
10.4 Discuss the general grounding considerations for a residence.	

OUTLINE FOR PROGRAM PERFORMANCE REPORTS
ADULT, VOCATIONAL, AND EDUCATION PROFESSIONS DEVELOPMENT ACT (EPDA) PROGRAMS

1. PROJECT NO.: 498AH50303

2. GRANT NO.: GCO-75-00453

3. TITLE OF PROJECT: OCCUPATIONAL EDUCATION PROGRAM ARTICULATION BETWEEN SECONDARY EDUCATION CENTERS AND

4. GRANTEE ORGANIZATION: GREENVILLE TECHNICAL COLLEGE Office of Education

5. PROJECT DIRECTOR: Clifford L. Shisler

6. PERIOD COVERED: FROM July 1, 1975 TO September 30, 1976

7. ACCOMPLISHMENTS *(including significant findings)* DURING THIS PERIOD. *(Key to approved project objectives. For educational personnel training programs, include progress made toward placement of trainees and institutionalization of programs.)*

SEE ATTACHED REPORT FOR NARRATIVE

8. MAJOR ACTIVITIES AND EVENTS.

9. PROBLEMS.* *(Describe any departures, including timing, from the original project plan; discuss special problems encountered or expected.)*

10. PUBLICITY ACTIVITIES.* *(Itemize all newspaper or magazine articles or other published materials about your project. A copy of each item should be attached. List all visits to the project site by educators from other organizations.)*

11. DISSEMINATION ACTIVITIES.* *(Describe method of dissemination; identify recipients of dissemination activities.)*

12. PROGRESS ON DATA COLLECTION AND EVALUATION PLANS AND PROCEDURES.*

13. OTHER ACTIVITIES.*

14. STAFF EMPLOYMENT AND UTILIZATION.* *(Note any changes in staff personnel or staffing plans by additions, departures, or revisions of percentage of time or other commitments to the project.)*

15. STAFF DEVELOPMENT.* *(Describe any inservice training for teachers, counselors, and supervisors and any other activities of a professional nature for project staff.)*

* IF THERE IS NOTHING TO REPORT IN THIS SECTION, WRITE N/A.

16. PARTICIPANT CHARACTERISTICS:

a. FOR ADULT EDUCATION TEACHER TRAINING *(13.402)* AND ALL EDUCATION PROFESSIONS DEVELOPMENT PROGRAMS *(13.416, 13.417, 13.503, 13.504, 13.505, 13.506, 13.545, and 13.546)* PROVIDE THE FOLLOWING DATA FOR PARTICIPANTS:

PARTICIPANTS	AMERICAN INDIAN		ORIENTAL		NEGRO/ BLACK		SPANISH-SURNAMED		ALL OTHERS		TOTALS
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
PRIMARY[1]											
ADMINISTRATORS											
GUIDANCE COUNSELORS											
TEACHER COUNSELORS											
TEACHER MEDIA SPECIALISTS											
TEACHER TRAINERS											
TEACHERS											
PARAPROFESSIONALS											
OTHERS *(Specify)*											
SECONDARY[2]											
TOTALS											

1 PARTICIPANTS FOR WHOM THE TOTAL PROJECT WAS DESIGNED
2 PARTICIPANTS WHO RECEIVED PARTIAL, SHORT-TERM, OR INTERMITTENT TRAINING.

b. FOR ADULT EDUCATION SPECIAL PROJECTS *(13.401)* PROVIDE THE FOLLOWING DATA FOR TARGET GROUPS:

AGE GROUPS	AMERICAN INDIAN		ORIENTAL		NEGRO/ BLACK		SPANISH-SURNAMED		ALL OTHERS		TOTALS
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
16 - 24											
25 - 34											
35 - 64 OR OVER											
TOTALS											

SIGNATURE OF PROJECT DIRECTOR: _____ DATE: _____

GSA DC 75-4852

OMB NO. 80-R018

FINANCIAL STATUS REPORT

1. FEDERAL AGENCY AND ORGANIZATIONAL ELEMENT: Office of Education

2. FEDERAL GRANT NO. OR OTHER IDENTIFYING NO.: G00-75-00453

3. NAME AND ADDRESS OF GRANTEE ORGANIZATION
GREENVILLE TECHNICAL COLLEGE
Box 5616-Station B
Greenville, South Carolina 29606
Attn. J. Ray Mixon

4. EMPLOYER IDENTIFICATION NO.: 57-0420667

5. GRANTEE ACCOUNT NO. OR IDENTIFYING NO.: OE-003991 / 1-570420667A1

6. FINAL REPORT: [X] YES [ ] NO

7. BASIS OF REPORT: [X] CASH [ ] ACCRUED EXPENDITURES

8. PROJECT PERIOD (Month, Day, Year): FROM 7 1 75 TO 9 30 76

9. REPORT PERIOD (Month, Day, Year): FROM 7 1 75 TO 9 30 76

10. STATUS OF FUNDS — PROGRAMS - FUNCTIONS - ACTIVITIES

	(1) Voc. Educ. Curr.	(2)	(3)	(4)	(5)	(6)	TOTAL
a. Total outlays previously reported	0						0
b. Total program outlays this period	30870.99						30870.99
c. LESS: Program income credits	0						0
d. Net program outlays this period	30870.99						30870.99
e. Total program outlays to date	30870.99						30870.99
f. LESS: Non-Federal share of program outlays	n/a						n/a
g. Total Federal share of program outlays	30870.99						30870.99
h. Total unpaid obligations	0						0
i. LESS: Non-Federal share of unpaid obligations	n/a						n/a
j. Federal share of unpaid obligations	0						0
k. Total Federal share of outlays and unpaid obligations	30870.99						30870.99
l. Total Federal funds authorized	33230.00						33230.00
m. Unobligated balance of Federal funds	2359.01						2359.01

11. INDIRECT EXPENSE: a. TYPE OF RATE (Mark box)
[ ] PROVISIONAL [ ] FINAL
[ ] PREDETERMINED [X] FIXED

b. RATE: 6%
c. BASE: 29123.58
d. TOTAL AMOUNT: 1747.41
e. FEDERAL SHARE: 1747.41

12. REMARKS (Attach additional sheets if necessary)

13. Certification - I certify that to the best of my knowledge and belief this report is correct and complete and that all outlays and unpaid obligations are for the purposes set forth in the grant award documents.

NAME / TITLE: J. R. Mixon, Director Planning and Grants

TELEPHONE: AREA CODE 803 NUMBER 242-3170 EXT. 361

SIGNATURE OF AUTHORIZED OFFICIAL: J R Mixon

DATE REPORT IS SUBMITTED: 9/30/76

HEW-601

119

CONCEPT/PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 11.o Lighting Branch Circuit for the Living Room	
11.1 Explain how to install multi-outlet assemblies.	
11.2 Determine load restrictions of multi-outlet assemblies as per NEC.	
11.3 Connect the proper dimmer controls for incandescent lamp circuits and for fluorescent lamp circuits.	
11.4 Define incandescent inrush current.	
11.5 Define a class P fluorescent ballast.	
Concept 12.0 Lighting Branch Circuit for the Dining Room, Porch, Garage Storage Area, and Attic	
12.1 Install a three-way switch and a dimmer control.	
12.2 Restate the Code requirements for the installation of outlets and receptacles in damp or wet locations.	
12.3 Describe the installation of attic wiring according to Code requirements.	
Concept 13.0 Lighting Branch Circuit for the Garage	
13.1 Given conditions in the cable layout and/or blueprints, select the proper wiring method (cable or conduit) based on the conditions of installation.	
Concept 14.0 Lighting and Receptacle Branch Circuits for the Terrace, Recreation Room, and Utility Room	
14.1 Select the proper size boxes for installation in areas where the construction makes it impossible to install deep boxes.	

CONCEPT / PERFORMANCE	(Sometimes)Covered or Not Covered C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
14.2 Describe the installation steps of conduit in concrete floors and on cinder block walls.	
14.3 List the basic requirements for the proper installation of conduit in an exposed location.	
14.4 Explain which convenience receptacles should be connected to separate circuits.	
Concept 15.0 Lighting and Convenience Receptacle Branch Circuits for the Bathroom, Workshop, and Storage Room	
15.1 Select the proper wiring method and outlet boxes for exposed wiring.	
15.2 Select the proper outlet box for surface mounting in a basement area.	
15.3 Given Code tables 310/16-19 and notes or ampacity, wattages, or load requirements for the load involved, determine the appropriate wire size for a specific ampacity and apply derating factors if necessary.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 1.0 - Generating AC Voltage, AC and DC Generators	
1.1 Tell how ac voltage is generated.	
1.2 Define the terms that describe an ac wave: aplitude, frequency, and phase relationship.	
1.3 Given a diagram, label the parts of an ac generator	
1.4 State the function of slip rings.	
1.5 State the function of a commutator.	
Concept 2.0 - AC Relationships	
2.1 State how a coil reacts to ac.	
2.2 Define and state the factors affecting inductive reactance.	
2.3 Given circuit perameters, calculate inductive reactance and current in an inductive circuit.	
2.4 Define a vector.	
2.5 Given magnitude and direction, calculate the sum of two vectors and plot rotating vector sine wave.	
2.6 Define the phase relationship between current and voltage in an inductive and capacitive ac circuit.	
2.7 Define and state the factors affecting capacitive reactance.	
2.8 Given circuit perameters, calculate capacitive reactance.	
2.9 Add ac voltages vectorially.	
2.10 Define and calculate impedance.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
2.11 Define, real, apparent, and reactive power.	
2.12 Define and compute the power factor.	
Concept 3.0 The Transformer	
3.1 State and explain the function and construction of a transformer.	
3.2 Given a schematic of a transformer with multiple secondary windings, determine the stepdown ratios required for circuit voltages and loads.	
3.3 Draw the schematic symbols for the various kinds of transformers.	
3.4 Determine the direction of induced voltage in the secondary conditions.	
3.5 Define current and voltage relationships.	
3.6 Calculate power in a transformer.	
3.7 Define copper, eddy current, and hysteresis loss.	
3.8 State transformer efficiency.	
3.9 Name transformer ratings.	
3.10 Define transformer impedence relationships.	
3.11 Given typical circuit values, solve impedence matching problems for a transformer.	
3.12 Define the function of an auto transformer.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
Concept 4.0 Power Supplies	
4.1 State the functions of a power supply.	
4.2 Define the functions of a rectifier.	
4.3 Diagram a full and half-wave rectifier.	
4.4 Explain the rectification of ac input utilizing diode rectification.	
4.5 Define ripple frequency and its relationship to half and full-wave rectification.	
4.6 Diagram a 1) choke-input filter, 2) capacitor-input filter, and 3) pi filter and explain the relative advantages and disadvantages of each.	
Concept 5.0 AC Computations	
5.1 Define the trigonometric functions of sine, cosine, and tangent.	
5.2 Solve vectors by graphical analysis.	
5.3 Solve vectors by the Pythagorean Theorem.	
5.4 Solve circuit problems by trigonometry.	
5.5 Define rectangular coordinates.	
5.6 Define polar coordinates.	
5.7 Make impedence calculation using rectangular and polar coordinates.	
Concept 6.0 Series Resistive - Reactive Circuits	
6.1 Analyze a series RL circuit by varying frequency, resistance, applied voltage and inductance; prove the effects by mathematical calculations.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
6.2 Define the terms cut-off and half-power point	
6.3 Determine the cutoff frequency of an RL circuit.	
6.4 Define an RL low-pass and high-pass filter.	
6.5 Solve vector diagrams for series RC circuits.	
6.6 Analyze a series RC circuit by variational analysis; prove the effects by mathematical calculations.	
6.7 Determine the effects pf frequency on RC circuits.	
6.8 Define an RC low-pass and high-pass filter.	
6.9 Solve mathematically for impedence in a series RLC circuit.	
6.10 Define the figure of merit (Q) for a coil and determine its value mathematically.	
6.11 Define skin effect.	
6.12 Define proximity effect.	
Concept 7.0 Series Resonance	
7.1 Define the conditions for series resonance	
7.2 Derive the expression for the resonant frequency.	
7.3 Explain and calculate voltage gain across the reactive elements in resonance.	
7.4 Diagram current and impedence curves at the resonant frequency.	

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
7.5 Define bandwidth and contrast it with voltage gain and explain their use in amplifiers and receivers.	
7.6 Explain the effects of Q on bandwidth.	
7.7 Tell how many series resonant circuits may be employed as filters.	
Concept 8.0 Parallel-Reactive Circuits	
8.1 Explain the current and voltage relationships of series versus parallel circuits.	
8.2 Calculate current, impedence, power, and power factor in a parallel RL circuit.	
8.3 Analyze a parallel RL circuit by varying frequency, resistance, applied voltage, and inductance; prove the effects by mathematical calculations.	
8.4 Calculate current, impedence, power, and power factor in a parallel RC circuit.	
8.5 Calculate current, impedence, power, and power factor in an RLC circuit.	
8.6 Analyze an ideal parallel LC circuit.	
8.7 Define the conditions for parallel resonance.	
8.8 Diagram current and impedence curves at the resonant frequency.	
8.9 Define a tank circuit.	
8.10 Analyze a practical tank circuit.	
8.11 Analyze circuit behavior above and below the resonant frequency.	

CE 009 669

CONCEPT / PERFORMANCE	(Sometimes) Covered or Not Covered? C, SC, or NC When is it covered? 1-1, 1-2, 2-1, 2-2
8.12 Tell how parallel resonant circuits may be used as filters.	
8.13 Define when the effective resistance of the coil in an RL circuit must be considered.	
8.14 Calculate figure of merit, impedence, and current in a practical RL circuit.	

ACCESSION NUMBER: VT103589

PUBLICATION DATE: 09JUL76

TITLE: FINAL EVALUATION REPORT ON CAREER ALTERNATIVES MODEL FOR 1975-76.

DESCRIPTOR: *CAREER PLANNING; *INFORMATION SEEKING; *PROGRAM EVALUATION; *STUDENT EVALUATION; *VOCATIONAL MATURITY; *DECISION MAKING; CAREER CHOICE; ELEMENTARY SECONDARY EDUCATION; STATISTICAL ANALYSIS; TABLES (DATA); QUESTIONNAIRES; SCHOOL SURVEYS; OCCUPATIONAL GUIDANCE

IDENTIFIER: HIGHLINE SCHOOL DISTRICT; SEATTLE; WASHINGTON

EDRS PRICE: MF AND HC AVAILABILITY WILL BE ANNOUNCED IN VOL. 10, NO. 3.

DESCRIPTIVE NOTE: 102P.

ABSTRACT: FOUR MAJOR COMPONENTS OF THE HIGHLINE SCHOOL DISTRICT'S CAREER ALTERNATIVES MODEL PROGRAM WERE EVALUATED IN THIS PROJECT. RESULTS ARE SUBDIVIDED INTO DISCUSSIONS OF THE FINDINGS FOR THE FOUR COMPONENTS OF: (1) "BREAD AND BUTTERFLIES" (GRADE LEVEL FOUR TO SIX), (2) WORK SAMPLES LABORATORY (SEVEN TO NINE), (3) COMPUTER GUIDANCE (10 TO 12), AND (4) CAREER INFORMATION CENTERS (10 TO 12). OBJECTIVES EXAMINED BY VARIOUS MEASURES RELATED TO AWARENESS AND KNOWLEDGE OF WORK, RESPONSIBILITY AND MATURITY IN CAREER DECISIONS, SKILLS APPROACH TO JOB KNOWLEDGE, AND THOUGHT AND RESOURCE USE DIRECTED TOWARD CAREER DECISIONS. EVALUATION OF THE "BREAD AND BUTTERFLIES" COMPONENT DID NOT RESULT IN A DEMONSTRATION OF SIGNIFICANT DIFFERENCES ON ANY MEASURE USED. RESULTS OF THE WORK SAMPLES COMPONENT SHOWED SIGNIFICANT DIFFERENCES WHEN TWO KNOWLEDGE TESTS WERE COMBINED. EVALUATION OF THE COMPUTER GUIDANCE COMPONENT AT HIGHLINE HIGH SCHOOL DEMONSTRATED SEVERAL SIGNIFICANT DIFFERENCES BETWEEN VARIOUS TREATMENT GROUPS, AND STUDENT DATA FROM THE CAREER INFORMATION CENTER SURVEY INDICATED A NUMBER OF SIGNIFICANT RELATIONSHIPS BETWEEN THE USE OF SERVICES AND STUDENT KNOWLEDGE AND CHARACTERISTICS. FINALLY, THE FACULTY SURVEY INDICATED THAT THE MAJORITY OF FACULTY FELT THAT ATTENTION TO CAREER CONCERNS HAD INCREASED DURING THE SCHOOL YEAR. TABLED STATISTICAL DATA IS PROVIDED FOR EACH OF THE SCALES USED AND THE EVALUATION INSTRUMENTS ARE APPENDED. (NJ)

INSTITUTION NAME: WASHINGTON, UNIV., SEATTLE. BUREAU OF SCHOOL SERVICE AND RESEARCH.

VT 103 589

OCT 22 1976

BEST COPY AVAILABLE

Final Evaluation Report on Career Alternatives Model for 1975-76

Highline School District
Seattle, Washington

Conducted by:

Bureau of School Service and Research
University of Washington
Seattle, Washington

July 9, 1976

VT 103 589

2

TABLE OF CONTENTS

	Page
INTRODUCTION	1
EVALUATION RESULTS	3
Bread and Butterflies	3
Work Samples Laboratory	6
Computer Guidance	18
Career Information Centers	27
SUMMARY AND IMPLICATIONS OF FINDINGS	38

INTRODUCTION

During the 1975-76 school year, the Bureau of School Service and Research (BSSR) at the University of Washington worked with personnel in the Highline School District in designing and implementing an evaluation of the Career Alternatives Model (CAM) program. The evaluation focused on assessing the impact of several key components of the CAM program while at the same time attempting to resolve certain evaluative concerns identified during the previous year's evaluation. A general emphasis of the 1975-76 evaluation was upon short-range changes in student behavior which might be more readily attributed to the particular components or treatments of interest than was possible in the previous evaluation. In addition, the current year's evaluation reflected a greater concern for selection controls and statistical controls to ensure that the various treatment and control groups were equated on such variables as socio-economic status and academic ability.

The following four major components of the CAM program were evaluated: (1) Bread and Butterflies (grade level 4-6), (2) Work Samples Laboratory (grade level 7-9), (3) Computer Guidance (grade level 10-12), and (4) Career Information Centers (grade level 10-12). The objectives which were examined in relation to each of these components and the basic activities which were required for evaluation are summarized in Table 1.

The Evaluation Results section of this report which follows is subdivided into discussions of the findings related to each of the major components. A final section of the report summarizes the results and focuses on the implications of findings in terms of general program impact.

TABLE 1

EVALUATION MATRIX

Objectives/Treatments/Activities

Objective	Treatment Group			
	Bread and Butterflies	Work Samples Laboratory	Computer Guidance	Career Information Centers
1. Increased awareness of and knowledge about work	D/E	E	R/E	E
2. Increased acceptance of responsibility for career decisions	E	N	N	D/E
3. Increased maturity in career decision-making	D/E	N	N	N
4. Increased use of a skills approach to job knowledge	N	D/E	N	N
5. Increased thought and/or resource use directed toward career decisions	N	N	R/E	D/E

N = No evaluation activities

D = Development and/or instrument field testing

E = Evaluation and testing of project participants

R = Review and analysis of data already collected

EVALUATION RESULTS

Bread and Butterflies

The film series Bread and Butterflies, together with the various auxiliary activities which accompany the program, was the primary mechanism oriented toward producing changes in outcome areas for grade levels four through six. The objectives expected to be most directly affected by the film series were those concerned with increased acceptance of responsibility for future career development and increased maturity in career decision making, although a secondary objective reflecting increased knowledge about the world of work was also evaluated.

Ten separate groups of students, totaling approximately 270 students, participated in the evaluation of the Bread and Butterflies treatment component. Six separate elementary schools were represented in the sample. The majority of students tested were fifth graders, although a small number of fourth- and sixth-grade students were included. The original intent in sample selection was to select classroom groups so as to represent pairs of classrooms which were roughly matched on socioeconomic background and ability level of students. Whenever possible, members of class pairs were to be chosen from the same school, and when this was not feasible, members of a class pair were to be chosen from two schools which reflected comparable student populations. Members of each pair were then to be randomly assigned to treatment or control conditions. In actuality, this selection procedure was altered somewhat due to problems involving some control groups which secured access to the series and some treatment groups which did not view

the series in its entirety. In the end, however, treatment and control groups were roughly equated using IQ measures from the Short Form Test of Academic Aptitude (SFTAA), grade 5, and the Basic Skills Battery, Total Grade Equivalent Score.

During May, students in the treatment and control groups were tested in classroom-size groups. Each student was administered:

1. Career Knowledge Assessment test, grade 5-6, a locally-developed 20-item instrument in multiple-choice format designed to measure the student's knowledge of the world of work. A portion of the items in the instrument are specifically oriented to the Northwest job market and industries. The instrument is a revision of the Career Knowledge Assessment test, grade 8-9, developed for use in the 1974-75 evaluation. Revision involved lowering the reading level of the instrument. A copy of the instrument is included as Appendix A.

2. Perceived Responsibility Scale (PRS), a locally-developed instrument with 48 items (and two filler items) in true-false format. This instrument measures the extent to which the student feels he is able to exercise influence and control over his life. Specifically, the scale is designed to reflect the individual's degree of responsibility for his own actions, both successful and unsuccessful; ability to perceive himself as independently accountable for decision making and planning; and belief in his own potential for effecting personal change. Items are expressed in terms of school situations, career situations, and general situations. The scale is to be interpreted in terms of attitudes essential to success in future careers, as revealed in the Bread and Butterflies series. Some revisions in the PRS were made following analysis of its use in the 1974-75 evaluation. The instrument, as used for the 1975-76 evaluation, is included as items 1-50 of Appendix B.

3. Inventory of Occupational Maturity (IOM), a locally-developed 35-item instrument in true-false format with a supplementary portion designed to obtain students' preferred occupational choices. The 35 items are statements which reflect students' interests, abilities, values, and desired living or working conditions. Individual statements are keyed to some 30 occupational fields in order to measure the compatibility of students' endorsed statements about themselves and their job choices. Keying was facilitated through the use of judges. Scoring of the instrument requires the computation of a percentage of the statements endorsed in the keyed direction which are pertinent to the student's chosen occupation. The IOM is included as items 51-85 of Appendix B of this report. [A single test

booklet was used for the PRS (items 1-50) and the IOM (items 51-85). The same instructions were used for both instruments.]

For the Career Knowledge Assessment test, the answer sheet used was Form EAC 74T (Appendix C), which was directly machine scored at the Educational Assessment Center, University of Washington. A t-test for the significance of the difference between means was carried out to compare treatment group to control group. As Table 2 shows, the obtained t-value of -.90 was nonsignificant at the .05 level, indicating that no significant difference between treatment group and control group on the measure of career knowledge was demonstrated.

TABLE 2

CAREER KNOWLEDGE ASSESSMENT, GRADES 4-6

t-test for Difference Between Means

Group	Mean	Standard Deviation	n	t
Treatment	6.746	3.16	173	-.90
Control	7.102	2.93	88	

Responses to the PRS and IOM were transcribed from true-false answer sheets (Appendix D) to punched cards and then submitted for computer scoring. For the PRS, each subject received a total of six subscale scores, the subscales containing items which reflect: (1) acceptance of personal responsibility for successful or neutral events, (2) acceptance of personal responsibility for unsuccessful events, (3) attributing responsibility for successful or neutral events to other persons, (4) attributing responsibility

for unsuccessful events to others, (5) attributing responsibility for successful or neutral events to luck, and (6) attributing responsibility for unsuccessful events to luck. Tables 3a - 3f provide summaries of the t-tests used to determine the significance of the differences between means for treatment and control groups on each subscale. In each case, the t-value was nonsignificant at the .05 level of significance.

For the IOM, four scores were calculated for each individual, one for each of the three occupational choices and an overall score obtained by taking the mean of the scores associated with the three occupational preferences. As noted previously, each score represents a percentage of items considered pertinent to the job or job area which are responded to in the keyed direction. Results of data analysis for the IOM are shown in Tables 4a - 4d. t-tests for the difference between means of treatment and control groups were nonsignificant at the .05 level for both individual occupational choice scores and the overall averaged score.

Work Samples Laboratory

At the junior high level, the major CAM component was the Work Samples Laboratory experience during which students were given the opportunity to engage in activities associated with a variety of jobs at all skill levels. To evaluate this component, a sample of approximately 240 ninth-grade students from two junior high schools in the Highline School District were selected. According to the schedule for attendance at the Work Samples Laboratory, approximately one half of the students from each of the schools was exposed to the treatment for the purpose of evaluation, while the other half of the students from each school did not attend the laboratory until completion of the evaluation. This latter group of students served as a control.

TABLE 3

PERCEIVED RESPONSIBILITY SCALE, GRADES 4-6

3a. Personal Responsibility for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	5.592	1.559	179	-.71
Control	5.724	1.336	87	

3b. Personal Responsibility for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	4.754	1.663	179	-1.22
Control	5.000	1.478	87	

3c. Others Responsible for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	1.927	1.698	179	-.03
Control	2.000	1.654	87	

TABLE 3

PERCEIVED RESPONSIBILITY SCALE, GRADES 4-6

3a. Personal Responsibility for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	5.592	1.559	179	-.71
Control	5.724	1.336	87	

3b. Personal Responsibility for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	4.754	1.663	179	-1.22
Control	5.000	1.478	87	

3c. Others Responsible for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	1.927	1.698	179	-.03
Control	2.000	1.654	87	

TABLE 3

PERCEIVED RESPONSIBILITY SCALE, GRADES 4-6

3a. Personal Responsibility for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	5.592	1.559	179	-.71
Control	5.724	1.336	87	

3b. Personal Responsibility for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	4.754	1.663	179	-1.22
Control	5.000	1.478	87	

3c. Others Responsible for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	1.927	1.698	179	-.03
Control	2.000	1.654	87	

TABLE 3

PERCEIVED RESPONSIBILITY SCALE, GRADES 4-6

3a. Personal Responsibility for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	5.592	1.559	179	-.71
Control	5.724	1.336	87	

3b. Personal Responsibility for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	4.754	1.663	179	-1.22
Control	5.000	1.478	87	

3c. Others Responsible for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	1.927	1.698	179	-.03
Control	2.000	1.654	87	

TABLE 3

PERCEIVED RESPONSIBILITY SCALE, GRADES 4-6

3a. Personal Responsibility for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	5.592	1.559	179	-.71
Control	5.724	1.336	87	

3b. Personal Responsibility for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	4.754	1.663	179	-1.22
Control	5.000	1.478	87	

3c. Others Responsible for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	1.927	1.698	179	-.03
Control	2.000	1.654	87	

TABLE 3 (continued)

3d. Others Responsible for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	2.693	1.750	179	.07
Control	2.678	1.699	87	

3e. Luck Responsible for Successful or Neutral Events

Group	Mean	Standard Deviation	n	t
Treatment	3.324	1.857	179	.25
Control	3.264	1.810	87	

3f. Luck Responsible for Unsuccessful Events

Group	Mean	Standard Deviation	n	t
Treatment	2.687	1.649	179	.50
Control	2.575	1.772	87	

TABLE 4

INVENTORY OF OCCUPATIONAL MATURITY

4a. Occupational Choice #1

Group	Mean	Standard Deviation	n	t
Treatment	.539	.288	156	.63
Control	.513	.293	76	

4b. Occupational Choice #2

Group	Mean	Standard Deviation	n	t
Treatment	.542	.274	151	1.00
Control	.501	.308	79	

4c. Occupational Choice #3

Group	Mean	Standard Deviation	n	t
Treatment	.520	.286	136	-.46
Control	.539	.283	74	

TABLE 4 (continued)

4d. Average Measure of Compatibility of Job Choices with Item Responses

Group	Mean	Standard Deviation	n	t
Treatment	.531	.190	118	.52
Control	.514	.212	59	

Several weeks after treatment groups from a given school completed the Work Samples Laboratory experience, all members of the treatment and control groups in that school were administered the evaluation instruments. Testing was accomplished at Seahurst Junior High School in January and at Pacific Junior High School in April. Tests were administered to groups either in the classroom or in the school cafeteria.

Three instruments were administered:

1. Career Knowledge Assessment test, grades 8-9, a locally-developed 20-item instrument in multiple-choice format designed to measure the student's knowledge of the world of work. A portion of the items in the instrument are specifically oriented to the Northwest job market and industries. The instrument has essentially the same content as that used for grades 5-6 but is written at a higher reading level. It is attached as Appendix E, items 1-20.

2. Subscale C of the Career Development Inventory (CDI), developed by Super and Forrest at Columbia University. A 30-item instrument in multiple-choice format, this test is likewise designed as a measure of knowledge of careers and career-related information. It is included in Appendix E as items 21-50. The Career Knowledge Assessment test, described in 1. above, and Subscale C of the CDI were answered on a single answer sheet, Form EAC 74T (Appendix C).

3. Job Skills Test (Appendix F), a locally-developed seven-item instrument which requires that the student provide from three to five "short-answer" responses to each item. The items are written so as to elicit responses regarding basic skills necessary for specific occupations, skills common to pairs of occupations, and skills which the student can identify within himself/herself. Responses are recorded directly on the instrument and scoring is accomplished by hand.

For the Career Knowledge Assessment test and Subscale C of the CDI, answer sheets were machine scored at the Educational Assessment Center, University of Washington. Scores were obtained for each student on the instruments separately and in combination. These three scores as well as the scores on the Job Skills Test were then placed on punched cards for analysis by computer. In addition, students' IQ scores on the Short Form Test of Academic Aptitude (SFTAA), grade 7, were obtained from school

district records to serve as the covariate in an analysis of covariance. The intent of using an analysis of covariance was to obtain a reduced estimate of experimental error by statistically controlling for any pre-existing differences in students' intelligence levels in the treatment and control groups, thereby increasing the power of the test of significance between group means.

The results of the analysis of covariance for the Career Knowledge Assessment test, Subscale C of the CDI, and the total knowledge measure are presented in Tables 5a - 5c. For the treatment and control conditions, mean IQ scores, unadjusted mean test scores, and adjusted mean test scores are reported. As may be noted, the difference between mean IQ for treatment and control groups was minimal. Nonsignificant values of F ($\alpha = .05$) were found for each instrument taken separately. However, when scores on the two instruments were combined to obtain a total knowledge score, a significant difference between the means of the treatment and control groups was demonstrated. The observed difference was in the expected direction, with those persons who attended the Work Samples Laboratory, the treatment group, scoring significantly higher on the measure of total career knowledge than the control group.

With regard to the Job Skills Test, results of data analysis are reported in Table 6. A highly significant value of F was obtained for the analysis of covariance. Again, the observed difference between means was in the expected direction with the treatment group attaining a score significantly higher than the control group.

TABLE 5

ANALYSIS OF COVARIANCE, KNOWLEDGE TESTS, GRADE 9

5a. Career Knowledge Assessment

Group	n	Mean IQ	Mean Test Score[a]	F
Treatment	104	102.79	12.576 (12.598)	2.540
Control	80	102.65	11.914 (11.900)	

5b. Subscale C of the CDI

Group	n	Mean IQ	Mean Test Score[a]	F
Treatment	104	102.79	16.641 (16.654)	3.817
Control	80	102.65	15.642 (15.625)	

5c. Total Knowledge

Group	n	Mean IQ	Mean Test Score[a]	F
Treatment	104	102.79	29.216 (29.240)	4.520 (sign.)
Control	80	102.65	27.556 (27.525)	

[a]Unadjusted means are reported in parentheses. Adjusted means used in the analysis of covariance are not in parentheses.

TABLE 6

ANALYSIS OF COVARIANCE, JOB SKILLS TEST

Group	n	Mean IQ	Mean Test Score[a]	F
Treatment	104	102.79	10.945 (10.952)	209.633 (sign.)
Control	80	102.65	3.184 (3.175)	

[a]Unadjusted means are reported in parentheses. Adjusted means used in the analysis of covariance are not in parentheses.

Supplementary data -- Chinook Junior High School. Prior to the formal testing for evaluation purposes, selected eighth- and ninth-grade students at Chinook Junior High School were administered the three instruments used for evaluating the Work Samples Laboratory component. This testing was undertaken for two reasons: (1) interest on the part of the CAM staff in examining the impact of career activities at Chinook, which was viewed as having a more developed career education program than other junior high schools in the district; and (2) an opportunity for field testing the newly-developed Job Skills Test. (As a result of this field testing, instructions for the Job Skills Test were changed somewhat for clarity.)

Table 7a presents the results of the analysis of covariance for the 20-item Career Knowledge Assessment test. The covariate was SFTAA, grade 7, IQ score. The obtained value of F (5.280) is significant at the .05 level of significance. Furthermore, as shown in Table 7b, paired comparisons for the several groups revealed that: (1) the mean of the ninth-grade control group was significantly higher than the mean of the eighth-grade control group; (2) the mean of the ninth-grade treatment group was significantly higher than the mean of the eighth-grade control group; and (3) the mean of the ninth-grade control group was significantly higher than the mean of the eighth-grade treatment group.

Table 8a contains the results of the analysis of covariance for the 30-item Subscale C of the CDI. Again, a significant value of F (5.069) was obtained. In this case, paired comparisons on the means of the groups demonstrated that the mean of the eighth-grade control group was significantly less than the mean for each of the remaining three groups (Table 8b). While for eighth graders, the treatment and control groups differed significantly, no such findings were indicated at the ninth-grade level.

TABLE 7

CHINOOK JUNIOR HIGH SCHOOL DATA
CAREER KNOWLEDGE ASSESSMENT

7a. Analysis of Covariance

Group	n	Adjusted Mean	F
8th grade Control	63	10.863	5.280 (sign.)
8th grade Treatment	46	11.072	
9th grade Control	24	13.186	
9th grade Treatment	28	12.245	

7b. t-tests for Comparisons of Means

	1	2	3	4
1 - 8th grade Control	.00			
2 - 8th grade Treatment	.39	.00		
3 - 9th grade Control	3.54 (sign)	3.07 (sign)	.00	
4 - 9th grade Treatment	2.23 (sign)	1.79	-1.24	.00

TABLE 8

CHINOOK JUNIOR HIGH SCHOOL DATA
SUBSCALE C OF CDI

8a. Analysis of Covariance

Group	n	Adjusted Mean	F
8th grade Control	63	12.615	5.069 (sign.)
8th grade Treatment	46	14.662	
9th grade Control	24	15.051	
9th grade Treatment	28	15.378	

8b. t-tests for Comparisons of Means

	1	2	3	4
1 - 8th grade Control	.00			
2 - 8th grade Treatment	2.78 (sign)	.00		
3 - 9th grade Control	2.68 (sign)	.41	.00	
4 - 9th grade Treatment	3.21 (sign)	.79	.31	.00

00024

When scores on the two knowledge tests were summed to produce a total knowledge score, results of data analysis (Table 9a) were comparable to those for the CDI Subscale. The obtained F value (6.551) is significant at the .05 level. Paired comparisons on the means revealed that the mean of the eighth-grade control group was significantly less than the means for the other three groups (Table 9b). Again, differences in treatment and control group means were found at the eighth-grade level but not at the ninth-grade level.

Finally, Table 10a presents the results of the analysis of covariance for the Job Skills Test. The obtained value of F (18.035) is highly significant. As shown in Table 10b, paired comparisons revealed that: (1) the mean of the eighth-grade control group was significantly less than both the mean of the eighth-grade treatment group and the mean of the ninth-grade treatment group; and (2) the mean of the ninth-grade control group was significantly less than both the mean of the ninth-grade treatment group and the mean of the eighth-grade treatment group. At each grade level, significant differences between treatment and control groups, in the desired direction, were demonstrated.

Computer Guidance

Reanalysis of 1974-75 Computer Guidance data. As a portion of the 1975-76 evaluation, the evaluation staff reanalyzed Computer Guidance data from the previous year's evaluation. A summary of the rationale, procedures, and findings of this reanalysis was submitted with the Interim Evaluation Report in January. A copy of this summary is included as Appendix G.

TABLE 9

CHINOOK JUNIOR HIGH SCHOOL DATA
TOTAL KNOWLEDGE TEST

9a. Analysis of Covariance

Group	n	Adjusted Mean	F
8th grade Control	63	23.475	6.551 (sign.)
8th grade Treatment	46	25.736	
9th grade Control	24	28.363	
9th grade Treatment	28	27.624	

9b. t-tests for Comparisons of Means

	1	2	3	4
1 - 8th grade Control	.00			
2 - 8th grade Treatment	2.14 (sign)	.00		
3 - 9th grade Control	3.74 (sign)	1.92	.00	
4 - 9th grade Treatment	3.36 (sign)	1.45	-.45	.00

TABLE 10

CHINOOK JUNIOR HIGH SCHOOL DATA
JOB SKILLS TEST

10a. Analysis of Covariance

Group	n	Adjusted Mean	F
8th grade Control	63	4.159	18.035 (sign.)
8th grade Treatment	46	8.204	
9th grade Control	24	4.027	
9th grade Treatment	28	8.535	

10b. t-tests for Comparisons of Means

	1	2	3	4
1 - 8th grade Control	.00			
2 - 8th grade Treatment	5.78 (sign)	.00		
3 - 9th grade Control	-.15	-4.60 (sign)	.00	
4 - 9th grade Treatment	5.34 (sign)	.38	4.49 (sign)	.00

Highline High School Data. At Highline High School, approximately 275 tenth-, eleventh-, and twelfth-grade students were administered the complete CDI. Tests were administered by the Vocational Information Specialist at the school, and data were analyzed with the aid of computer programs by the evaluation staff at the BSSR.

The complete CDI is composed of three subscales. Subscale A is designed to measure the amount of thought, planning, general information seeking, and decision making that the student has engaged in with regard to careers. Subscale B is a measure of the type and amount of assistance the student is inclined to seek from various sources of information. Subscale C has been previously defined as a career knowledge measure. A total CDI score is also obtainable. Appendix H of this report contains a copy of the instrument as used at Highline High School with a cover sheet developed to obtain pertinent background information on the student.

The analysis which was undertaken involved the comparison of four treatment groups on each of the subscales and on the total CDI score. The four treatment groups were: (1) students who had computer experience both during the 1974-75 school year and during the 1975-76 school year ["both years" group], (2) students who had computer experience in 1974-75 but not in 1975-76 ["last year only" group], (3) students who had computer experience in 1975-76 but not in 1974-75 ["this year only" group], and (4) students who had no computer experience in 1974-75 and no computer experience in 1975-76 ["neither year" group]. An analysis of covariance was used with the covariate being IQ score from the Short Form Test of Academic Aptitude (SFTAA), grade 10, obtained for each student from school district records.

Results of the analysis of covariance for Subscale A are presented in Table 11a. The overall F of 6.417 is significant at the .05 level of

TABLE 11

HIGHLINE HIGH SCHOOL COMPUTER GUIDANCE DATA
SUBSCALE A OF CDI

11a. Analysis of Covariance

Group	n	Mean IQ	Mean Subscale Score[a]	F
"Both years" group	49	98.33	107.6 (108.53)	6.417 (sign.)
"Last year only" group	36	98.87	116.3 (117.42)	
"This year only" group	40	95.16	106.4 (106.42)	
"Neither year" group	151	91.14	101.2 (101.54)	

11b. t-tests for Comparison of Means

	1	2	3	4
1 - "Both years" group	.00			
2 - "Last year only" group	2.05 (sign)	.00		
3 - "This year only" group	-.29	-2.23 (sign)	.00	
4 - "Neither year" group	-2.02 (sign)	-4.21 (sign)	-1.52	.00

[a]Unadjusted means are reported in parentheses. Adjusted means used in the analysis of covariance are not in parentheses.

significance. Paired comparisons on the various group means revealed four significant values of t: (1) the mean of the "last year only" group was significantly higher than the mean of the "both years" group; (2) the mean of the "last year only" group was significantly higher than the mean of the "this year only" group; (3) the mean of the "last year only" group was significantly higher than the mean of the "neither year" group; and (4) the mean of the "both years" group was significantly higher than the mean of the "neither year" group. Table 11b on the previous page summarizes these comparisons.

For Subscale B, results of the analysis of covariance are reported in Table 12a. A significant value of F (4.489) was obtained. Paired comparisons using t-tests (Table 12b) revealed two findings of significant differences between group means: (1) the mean of the "last year only" group was significantly higher than the mean of the "neither year" group; and (2) the mean of the "last year only" group was significantly higher than the mean of the "this year only" group.

Results of the analysis of covariance for Subscale C are reported in Table 13a, which shows a nonsignificant value of F (1.078). Hence, the lack of significant differences among paired comparisons on the various group means (Table 13b) are to be expected. On the career knowledge subtest, no significant differences among group means were noted.

Finally, the results of the analysis of covariance for the total CDI score are presented in Table 14a. The value of F (6.368) is significant at the .05 level. Paired comparisons on the group means (Table 14b) demonstrate that the "last year only" group scored significantly higher on the CDI than (1) the "both years" group, (2) the "this year only" group, and (3) the "neither year" group.

TABLE 12

HIGHLINE HIGH SCHOOL COMPUTER GUIDANCE DATA
SUBSCALE B OF CDI

12a. Analysis of Covariance

Group	n	Mean IQ	Mean Subscale Score[a]	F
"Both years" group	49	98.33	257.420 (257.96)	4.489 (sign.)
"Last year only" group	36	98.87	276.340 (277.84)	
"This year only" group	40	95.16	255.676 (246.94)	
"Neither year" group	151	91.14	246.875 (254.79)	

12b. t-tests for Comparisons of Means

	1	2	3	4
1 - "Both years" group	.00			
2 - "Last year only" group	1.95	.00		
3 - "This year only" group	- .19	-2.04 (sign)	.00	
4 - "Neither year" group	-1.45	-3.60 (sign)	-1.12	.00

[a]Unadjusted means are reported in parentheses. Adjusted means used in the analysis of covariance are not in parentheses.

TABLE 13

HIGHLINE HIGH SCHOOL COMPUTER GUIDANCE DATA
SUBSCALE C OF CDI

13a. Analysis of Covariance

Group	n	Mean IQ	Mean Subscale Score[a]	F
"Both years" group	49	98.33	18.590 (18.43)	1.078
"Last year only" group	36	98.87	19.811 (20.13)	
"This year only" group	40	95.16	19.090 (18.77)	
"Neither year" group	151	91.14	18.717 (19.21)	

13b. t-tests for Comparisons of Means

	1	2	3	4
1 - "Both years" group	.00			
2 - "Last year only" group	1.56	.00		
3 - "This year only" group	.66	- .88	.00	
4 - "Neither year" group	.22	-1.66	-.59	.00

[a]Unadjusted means are reported in parentheses. Adjusted means used in the analysis of covariance are not in parentheses.

TABLE 14

HIGHLINE HIGH SCHOOL COMPUTER GUIDANCE DATA
TOTAL CDI

14a. Analysis of Covariance

Group	n	Mean IQ	Mean Test Score[a]	F
"Both years" group	49	98.33	383.627 (384.92)	6.368 (sign.)
"Last year only" group	36	98.87	412.410 (415.40)	
"This year only" group	40	95.16	381.183 (380.42)	
"Neither year" group	151	91.14	366.823 (367.24)	

14b. t-tests for Comparisons of Means

	1	2	3	4
1 - "Both years" group	.00			
2 - "Last year only" group	2.28 (sign)	.00		
3 - "This year only" group	- .20	-2.36 (sign)	.00	
4 - "Neither year" group	-1.77	-4.27 (sign)	-1.40	.00

[a]Unadjusted means are reported in parentheses. Adjusted means used in the analysis of covariance are not in parentheses.

Career Information Centers

Student data. Each high school in the Highline School District operates a Career Information Center designed to direct and coordinate a variety of career education activities within these schools. Each center is under the direction of a full-time Vocational Information Specialist. An evaluation of these centers comprised the fourth major project for the 1975-76 CAM evaluation.

A test booklet entitled Career Information Center Survey (Appendix I) was developed for administration to students from each high school. The booklet contains four sections:

1. A Biographical Information sheet designed to provide categorical data on the student and brief information on the student's career plans and current career education activities.

2. Inventory of Service Use (ISU), a locally-developed "check list" type of instrument which collects data on the student's familiarity with the various center services, the amount of use which he/she made of the services during the school year, and his/her evaluation of particular services received. Six separate center services are listed on the form. The form was developed with the assistance of the Vocational Information Specialists from the five schools.

3. Subscale C of the Career Development Inventory (CDI), as previously described.

4. Perceived Responsibility Scale (PRS), as previously described.

A sample of 66 students (22 tenth graders, 22 eleventh graders, and 22 twelfth graders) were randomly selected from each of the five high schools using school rosters provided to the evaluation staff by the school district. Each Vocational Information Specialist was contacted individually, given the list of selected students, and advised of testing procedures. The Vocational Information Specialists then arranged for all selected students within each school to be tested by evaluation personnel in a single testing

session. Testing of students was accomplished during April and May.

Responses to the several instruments contained in the survey form were recorded by students directly on the survey booklet. These responses were then placed on punched cards for submission to computer analysis. Of primary interest was the possibility of: (1) a relationship between familiarity with, use of, and evaluation of the center services (as reflected in responses to the ISU) and students' knowledge of the world of work (as measured by Subscale C of the CDI); and (2) a relationship between familiarity with, use of, and evaluation of center services (again, as measured by the ISU) and the amount of responsibility assumed by students for career and life decisions and outcomes (as measured by the PRS subscales).

Table 15 presents a matrix of correlations between the variables of interest for all students. As may be noted, CDI knowledge scores and each of the PRS subscale scores were correlated with the measures of "familiarity with service," "level of use of service," and "value of service" calculated from ISU responses. "Familiarity with service" scores were obtained by assigning a value of 2 to the "yes" response and a value of 1 to the "no" response and summing these values for the six services for each student. For the services with which the student was familiar, "level of use of service" scores were calculated by assigning a value of 3 to the "very much" response, a value of 2 to the "some" response, and a value of 1 to the "not at all" response. The student's score was obtained by summing the values over all services. Finally, "value of service" scores were the sum of responses for all familiar services with a value of 3 representing "very helpful," a value of 2 representing "somewhat helpful," and a value of 1 representing "little or no help."

TABLE 15

CAREER INFORMATION CENTER SURVEY

Correlations of Knowledge and Responsibility Measures with Measures of Service Familiarity, Use, and Evaluation[a]

Service Measures	CDI (Knowledge)	PRS #1 Personal Responsibility for Successful or Neutral Events	PRS #2 Others Responsible for Successful or Neutral Events	PRS #3 Luck Responsible for Successful or Neutral Events	PRS #4 Personal Responsibility for Unsuccessful Events	PRS #5 Others Responsible for Unsuccessful Events	PRS #6 Luck Responsible for Unsuccessful Events
Familiarity	.259	- .084	- .169	- .275	- .018	- .255	- .274
Level of Use	.097	- .011	- .171	- .141	.108	- .169	- .178
Value of Service	.033	.066	- .206	- .106	.226	- .153	- .149

[a]Those correlations which are significantly different than zero at the .05 level are underlined.

In Table 15, those correlation coefficients which are significant at the .05 level of significance are underlined. For significance, a value of r equal to or exceeding .138 is required (N = 214). The significant correlation coefficients represent:

1. A significant positive relationship between familiarity with services and career knowledge (as measured by CDI Subscale C).

2. A significant negative relationship between familiarity with services and attributing responsibility for successful or neutral events to others.

3. A significant negative relationship between familiarity with services and attributing responsibility for successful or neutral events to luck.

4. A significant negative relationship between familiarity with services and attributing responsibility for unsuccessful events to others.

5. A significant negative relationship between familiarity with services and attributing responsibility for unsuccessful events to luck.

6. A significant negative relationship between level of use of services and attributing responsibility for successful or neutral events to others.

7. A significant negative relationship between level of use of services and attributing responsibility for successful and neutral events to luck.

8. A significant negative relationship between level of use of services and attributing responsibility for successful events to others.

9. A significant negative relationship between level of use of services and attributing responsibility for unsuccessful events to luck.

10. A significant negative relationship between value of service and attributing responsibility for successful or neutral events to others.

11. A significant positive relationship between value of service and assuming personal responsibility for unsuccessful events.

12. A significant negative relationship between value of service and attributing responsibility for unsuccessful events to others.

13. A significant negative relationship between value of service and attributing responsibility for unsuccessful events to luck.

Supplementary Data--Faculty Survey. In addition to student data, the Vocational Information Specialists at the five high schools in the district expressed a desire to obtain information from the faculties and staffs of each high school regarding knowledge, use, and evaluation of Career Information Center services. To meet this need, a second survey form was developed and is included as Appendix J.

Individual meetings were held with the Vocational Information Specialists from each school to discuss the most efficient method of distributing the survey forms. The methods of distribution varied from school to school and included placement in individual mail boxes, personal delivery to faculty members, and distribution at general faculty meetings. In all cases, an effort was made to provide a thorough explanation of the purpose and importance of evaluation and how the data would be used. Survey forms were forwarded by mail from respondents to the evaluation staff at the BSSR. The original deadline for receipt of the forms (May 1, 1976) was extended in order to obtain as high a response rate from each school as possible.

Data from the faculty survey forms were placed on punched cards and submitted to computer analysis. Because the items on the survey form reflect a composite of the areas of interest of the five Vocational Information Specialists, with some items relevant to some schools but not to the others, it was not considered appropriate to make a direct comparison of

responses to these items between schools. Whereas an examination of these item responses summed over all schools may provide relevant feedback to CAM personnel concerning district-wide impact, each school should be examined on an individual basis with regard to these items. This is an important point to keep in mind--respondents may have noted little impact of a career activity in a particular school setting not because this activity was ineffective but rather because it was deemphasized in favor of another activity. Hence, most of the descriptive data on individual schools which follow must be interpreted in terms of the objectives emphasized and the particular means used for attainment of these objectives within each school. However, two comparisons of item responses (including tests of significance between schools) were made and are discussed later in this part of the report.

Tables 16 thru 19 summarize the data from the faculty survey with attention to each school individually and to the five schools in combination. Table 16 provides data on respondents' overall impression of the change in amount of attention given to career concerns during the school year. Table 17 summarizes the data on faculty familiarity with the six key center services. Table 18 presents mean responses to items referring to contact and referral to the center and general impact of the center, and Table 19 presents mean responses to items reflecting career activities in the classroom.

For item 5 of Part II ("How much of an impact do you feel the center has had in creating a career awareness at your school?"), a Chi-square test of independence was performed to determine if there were a significant relationship between responses to the items and particular schools, that is, to determine if schools differed in the frequencies of responses in the several response categories of the item. Table 20 presents these frequencies for

TABLE 16

FACULTY SURVEY

Change in Amount of Attention
Directed to Career Concerns[a]

School	Number of Respondents	Change Category			Mean Score[b]
		Decreased	No Change	Increased	
Evergreen	61	1.6%	34.4%	63.9%	2.623
Tyee	21	0.0	33.3	66.7	2.667
Glacier	25	4.0	40.0	56.0	2.520
Highline	54	0.0	29.6	70.4	2.704
Mt. Rainier	34	5.9	50.0	44.1	2.382
All Schools	195	5.9	36.4	61.5	2.595

[a]Faculty were asked to respond to the question, "What change, if any, has occurred in the amount of attention given to career concerns in your classroom this year?"

[b]Based on: Decreased = 1
Remained the same = 2
Increased = 3

TABLE 17

FACULTY SURVEY

Level of Familiarity with Student Services

Service Category	Average Familiarity Rating[a]					
	Evergreen	Tyee	Glacier	Highline	Mount Rainier	All Schools
Computer Guidance System ("Mr. Wizard")	2.28	2.83	2.37	2.61	2.27	2.45
Availability of career pamphlets and other materials	2.70	2.88	2.50	2.76	2.61	2.70
Career counseling with Career Information Center staff	2.53	2.79	2.43	2.51	2.45	2.53
Vocational or career testing (e.g., OVIS, ASVAB)	2.37	2.58	2.21	2.39	2.21	2.35
Availability of job placement information in the Center	2.36	2.83	2.36	2.05	2.32	2.32
Career-oriented field trips sponsored by the Center	2.36	2.17	2.46	2.52	2.57	2.43

[a]Based on: Not aware of service = 1
Aware of service but not well informed = 2
Very familiar with service = 3

TABLE 18

FACULTY SURVEY

Contact with Center and General Impact of Center

Survey Item	Average Response[a]					
	Evergreen	Tyee	Glacier	Highline	Mount Rainier	All Schools
1. How often have you been encouraged to visit your school's Career Information Center by either Center personnel or other school personnel?	2.27	2.58	1.78	2.36	2.05	2.23
2. How often have you actually visited the Career Information Center?	1.86	2.42	1.82	2.11	1.82	1.98
3. How often have you referred students to the Career Information Center for vocational guidance or other career-related information?	2.14	2.42	1.75	1.93	1.95	2.03
4. To what extent have your contacts with the Career Information Center personnel been initiated by you (rather than by Center personnel)?	1.52	1.87	1.54	1.48	1.76	1.59
5. How much of an impact do you feel the Center has had in creating a career awareness at your school?	2.44	2.75	1.96	2.60	2.08	2.39

[a]For items 1, 2, and 3 the scale was: Never 0 1 2 3 Quite Often; for item 4 the scale was Never 0 1 2 3 Entirely; and for item 5 the scale was None 0 1 2 3 Quite a Bit.

TABLE 19

FACULTY SURVEY

Impact on the Classroom

Survey Item	Average Response[a]					
	Evergreen	Tyee	Glacier	Highline	Mount Rainier	All Schools
1. How much assistance have you received from the Career Information Center in obtaining career-oriented materials for use in the classroom?	1.95	2.14	1.80	2.28	1.15	1.90
2. How often have you conferred with Center personnel specifically for the purpose of obtaining help in relation to career activities in the classroom?	1.46	1.91	1.15	1.46	1.21	1.43
3. How often do you attempt to incorporate career concepts and activities into your ongoing classroom curriculum?	1.83	2.23	1.95	2.08	1.84	1.96
4. How much of an impact do you feel the Career Information Center has had on the amount of attention given to career concerns in your classroom teaching?	1.75	1.96	1.45	1.90	1.25	1.70

[a]For item 1 and 4 the scale was None 0 1 2 3 Quite a Bit; and for items 2 and 3 the scale was Never 0 1 2 3 Quite Often.

TABLE 20

FACULTY SURVEY

Response Frequencies, Part II, Item 5

School	Response Frequencies[a]				Total Number of Respondents
	0	1	2	3	
Evergreen	0	8	19	36	63
Tyee	0	1	4	19	24
Glacier	1	8	10	9	28
Highline	1	3	14	40	58
Mt. Rainier	1	11	10	16	38

[a]The scale used here was None 0 1 2 3 Quite a Bit and the question was as follows: "How much of an impact do you feel the center has had in creating a career awareness at your school?"

the five schools. The obtained Chi-square value of 24.69 was significant at the .05 level, indicating an association between school and pattern of responses. Perusal of Table 20 would seem to indicate that Tyee and Highline High Schools tended to have a greater percentage of responses in the higher response category (3) while Glacier and Mt. Rainier High Schools had a greater percentage of responses in the lower response categories (0 and 1).

Similarly, for item 4 of Part III ("How much of an impact do you feel the Career Information Center has had on the amount of attention given to career concerns in your classroom teaching?"), a Chi-square test of significance was performed to determine if there were a significant relationship between school and response frequencies. The obtained value of Chi-square (16.34) was significant at the .05 level, indicating the presence of a significant relationship. As Table 21 suggests, Tyee and Highline High Schools tended to have a greater percentage of responses in the higher response categories (2 and 3), while Glacier and Mt. Rainier High Schools tended to have a greater percentage of responses in the lower response categories (0 and 1).

SUMMARY AND IMPLICATIONS OF FINDINGS

The evaluation of the impact of the Bread and Butterflies component of the CAM program did not result in the demonstration of significant differences between treatment and control groups on any of the measures used. The reasons for such lack of significant differences are indeterminate, but several possibilities may be offered.

For the Career Knowledge Assessment test, based on the obtained variances of the treatment and control groups and the number of subjects within each group, the difference between group means required for significance would be .657 or approximately .22 standard deviation units. This rather low value

TABLE 21

FACULTY SURVEY

Response Frequencies, Part III, Item 4

School	Response Frequencies[a]				Total Number of Respondents
	0	1	2	3	
Evergreen	8	14	19	16	57
Tyee	1	5	10	6	22
Glacier	4	6	7	3	20
Highline	6	10	17	17	50
Mt. Rainier	8	14	4	6	32

[a]The scale used here was None 0 1 2 3 Quite a Bit and the question asked was as follows: "How much of an impact do you feel the Career Information Center has had on the amount of attention given to career concerns in your classroom teaching?"

indicates that there were probably sufficient numbers of subjects in the test of significance to detect differences in groups if they existed. However, the instrument itself might be critically examined with regard to its appropriateness. In retrospect, it appears that the difficulty level of the Career Knowledge Assessment test for elementary school students may have detracted from its ability to demonstrate differences between groups. That is, the test may have been too difficult to be a reliable measure of individual differences in student awareness of careers. This problem was not foreseen when the test was developed but was supported by post-evaluation item analysis of the data.

With regard to the data from the PRS and IOM, again it was determined that there were sufficient numbers of students in the two groups to detect significant differences. The finding of no significant differences between groups might therefore be a function of either weaknesses in the instruments themselves or lack of adequate impact of the program upon students. Especially when one considers the objectives related to this portion of the evaluation--changes in student's self-awareness, degree of personal responsibility, and maturity in career decision making--the difficulty in demonstrating program impact becomes apparent. It may be that to effect change in these affective areas requires a more intensive long-term learning experience than could be offered by the district's career education program.

The results of the evaluation of the Work Samples Laboratory component at the junior high school level were more encouraging. While significant differences between the means of treatment and control groups for the Career Knowledge Assessment test and Subscale C of the CDI were not demonstrated, the differences which were found in these tests were in the expected direction and suggestive. Furthermore, when scores on these measures were

combined to form a total knowledge score and a test of significance was performed, a significant difference between groups was demonstrated. It appears that the increased reliability gained from combining the two knowledge measures into a single instrument provided for a more powerful test of significance and thus the detection of differences between groups.

The Job Skills Test was more specific to the actual objectives and activities of the Work Samples Laboratory. The finding that the treatment group scored significantly higher than the control group thus seems to indicate that students who attended the Work Samples Laboratory did gain an ability to identify skills necessary for various occupations and to analyze the similarities between occupations using a job skills approach. The value of F obtained (209.633) represents a finding of differences between groups which is extremely unlikely to have occurred on the basis of chance alone.

The evaluation of the Computer Guidance component at Highline High School demonstrated a number of significant differences between the various treatment groups. In general, the group which had computer experience during the 1974-75 school year but did not repeat that experience during the 1975-76 school year performed better on the CDI than the other groups. It is somewhat puzzling why the group which had experience on the computer both years and the group which had experience only during the 1975-76 school year did not, in general, score as highly as did the "last year only" group. However, on Subscale A, for example, the "both years" group did score significantly higher than the "neither year" group; and the data do demonstrate a distinct tendency for those who had computer experience to some degree (whether it be one year or both years) to perform better on the instrument. For Subscales A and B and the total CDI, the "neither year" group was consistently the lowest-scoring group.

Analysis of the data for Subscale C of the CDI, composed of career knowledge items, did not result in significant differences between groups. This would seem to suggest that the impact of the Computer Guidance experience is not highly related to increased knowledge of careers. Rather, its impact may be more accurately focused upon an increased awareness of the need for planning and information seeking, as represented by Subscales A and B.

Student data from the Career Information Center Survey indicated a number of significant relationships between use of services and student knowledge and characteristics. Perhaps most interesting is the finding that familiarity with the various services was significantly related to student's performance on the CDI knowledge measure. The significance of the obtained correlation coefficient suggests that, in general, there is a tendency for students who are more familiar with services to score higher on the instrument. Whether the difference is attributed to knowledge gained through use of the center or from a generally higher ability or information level remains problematical.

The interpretation of correlations between service measures (familiarity, use, and value) and the PRS subscales is somewhat more difficult. However, the pattern of negative correlations between service measures and PRS subscales 2, 3, 5, and 6 would seem to indicate that those persons who are externally-oriented tended to be less involved in utilization of center services. That is, those students who tend to attribute responsibility for events to others or luck were also likely to not have knowledge of, utilize, or value center services. If we can infer that these same externally-oriented students demonstrate less personal responsibility or initiative, then we can reasonably conclude that, for them, the center services are less

meaningful. Conversely, for students who do not attribute responsibility to external sources, the services are more meaningful.

Finally, the faculty survey indicated that the majority of faculty in the school district (61.5%) felt that attention to career concerns had increased during the school year. Generally, they were aware of Career Information Center services, and, in the cases of field trips, career counseling, and availability of career literature, the majority of faculty (51.2% - 69.5%) considered themselves very familiar with the services. Items reflecting degree of contact with or referral to the centers revealed, again, that the majority of faculty (57.9% - 78.3% in the five schools) responded on the upper half of the range of the rating scales. Responses to questions regarding impact of the centers on the classroom were also generally on the upper range of the rating scales (50.2% - 66.3% of faculty surveyed in the five schools).

This booklet contains questions about jobs and career planning. Some questions ask about career facts; some ask about job skills; and others ask you to judge students' abilities, interests and job plans. Give the best answers you can.

All answers are to be marked on the answer sheet provided. Make no marks in the booklet. For each question, find the number of the question on your answer sheet and mark the space that is the same as the letter of your answer. Completely erase any changed answers or any other marks on the answer sheet.

Answer all questions. If you are unsure of an answer, guess. There is no time limit, but work as fast as you can.

You must use a NUMBER TWO PENCIL. Ask for a pencil if you do not have one.

The questions begin on the next page.

Choose the one best answer to each question. Mark the letter of your answer on the answer sheet.

1. A longshoreman might be expected to do which of the following?

A....give advice on boat-building
B..sell beachfront land
C....lift and carry heavy boxes
D..measure the length of lumber
E....operate a steamboat

2. A computer programmer needs to know how to do which of the following?

A....repair tape recorders
B..give artificial respiration
C....read mathematical symbols
D..replace broken windows
E....operate a television camera

3. A real estate salesman is best described by which of the following?

A....works best under the direct supervision of others
B..likes to work with his hands
C....has good depth perception
D..is not afraid of heights
E....does not mind working on weekends

4. A surveyor is best described by which of the following?

A....enjoys classical music
B..is able to work well under stress
C....does not mind large crowds of people
D..likes to work evenings and nights
E....likes outdoor activities

5. A bookkeeper might be expected to do which of the following?

A....check for overdue library books
B..write book reviews
C....keep records for a business
D..put books in alphabetical order
E....operate a printing press

6. A stock clerk in a grocery store might be expected to do which of the following?

A....decide on the prices of items
B..give out paychecks
C....cut and package meat
D..arrange employees' work schedules
E....put food products on shelves

7. A lens grinder might be expected to do which of the following?

A....adjust a television camera
B..work with precision tools
C....operate a concrete mixer
D..give eye examinations
E....advise people about the stock market

8. Which of the following best describes the working hours of an insurance salesman?

A....odd hours and weekends
B..regular hours five days a week
C....only nights
D..mostly mornings
E....only on weekends

9. A person who has a talent for public speaking might be successful in which occupation?

A....trial lawyer
B..model
C....family doctor
D..newspaper reporter
E....shoe salesman

10. Which of the following gives information about higher education and training opportunities in Washington State?

A....Mapping Your Education
B..Northwest Quarterly
C....Chamber of Commerce Weekly
D..Dictionary of Occupational Titles
E....Seattle Times

11. What has most influenced the job market in the last ten years?

A....television
B..microwave cooking units
C....widespread use of computers
D..steam-powered engines

12. If supertankers bringing oil from Alaska were allowed to unload their oil cargo in the Puget Sound area, the most direct effect on the local job market might be:

A....increase in tourism and related industries
B..decreased banking and other financial activities
C....decreased need for doctors, lawyers, and other professional people
D..increased need for construction workers and other blue-collar workers

13. High rates of unemployment are likely to occur during a period of:

A....economic stability
B..warfare
C....economic expansion
D..inflation
E....recession

14. Which of the following represents a current trend in the job market?

A....more women in professional jobs
B..longer work weeks
C....greater reliance on individuals rather than machines
D..less need for professional service jobs

15. Which of the following represents a current trend in the job market?

A....more middle-level technician jobs
B..few, if any, early retirements
C....more agriculture-related jobs
D..more assembly-line jobs

For each group below, select the line which best shows how a person may advance within a career field without additional education.

16. A....store cashier becomes store manager
B..nurse's aide becomes head nurse
C....dog groomer becomes veterinarian
D..welder becomes aeronautical engineer

17. A....reservation agent becomes airline pilot
B..school custodian becomes principal
C....lawyer becomes judge
D..short-order cook becomes dietitian

18. A....TV repairman becomes TV producer
B..swimming instructor becomes oceanographer
C....hospital orderly becomes surgeon
D..parts assembler becomes plant foreman

In each group below, choose the industry or occupational field which is not likely to be found in the Puget Sound area.

19. A....ranching
B..recreation
C....fishing
D..forestry

20. A....automobile assembly
B..pulpmills
C....shipbuilding
D..aerospace

On the following pages are sentences which might describe you or what you believe. Read each sentence and then decide whether you think that the sentence is true or false. On the answer sheet, find the number of the sentence. Circle T if you decide that the sentence is true, and circle F if you decide that the sentence is false. Be sure to respond to every sentence.

1. If I decide to do something, I always get it done.
2. Teachers usually have good advice for someone who has a problem.
3. I believe in luck.
4. People who get fired from jobs are the ones who deserve it the most.
5. Other people usually decide what is best for me.
6. Getting a traffic ticket is mostly a matter of bad luck.
7. The only way to get good grades is to study hard.
8. Other people are often getting me into trouble.
9. There's no use in planning because plans are usually changed by unexpected events.
10. If I play around too much in school, I probably will never get a good job.
11. Success depends mostly on knowing the right people.
12. Trouble often finds me without my doing anything.
13. I am responsible for the things that happen to me.
14. It is almost impossible to get ahead if you don't know the right people.
15. What is going to happen in my future is pretty much already determined.
16. If you lose a contest, it is because you did not try hard enough.
17. I depend on the teacher to tell me when I am doing a good job.
18. Getting in trouble once in a while is something that just can't be helped.
19. Students who win class elections are the ones who work the hardest.
20. Other people are the greatest cause of my problems.
21. Finding an interesting job is mainly a matter of luck.
22. I have been unable to buy things that I wanted when I did not plan ahead and save for them.
23. Pay raises are given to the workers that the boss likes the most.
24. If I am late for dinner, it is usually not my fault.
25. If I try hard, I can be anything I want to be.

26. Low grades go to the students the teacher doesn't like.

27. Many things happen to me that I don't know how to control.

28. People who cannot find a good job have simply not tried hard enough to find one.

29. Decisions by other people will determine my future.

30. Students who fail tests are bad guessers.

31. Being a hard worker is most important in getting ahead.

32. If I don't understand something in class, it's usually because the teacher wasn't clear enough.

33. On most jobs it takes a lot of luck to get everything done on time.

34. When I don't do well on a test, it is because I did not study hard enough.

35. To get most job promotions you need to know the right people.

36. Most of the time I can't help doing the things that get me in trouble.

37. If I really tried, I could become a class officer.

38. Many teachers get angry at students for no good reason.

39. Luck has been very important in my life.

40. Teachers give low grades to those students who don't work hard enough.

41. I don't have much control over what happens to me.

42. Many people's problems are caused by bad luck.

43. What you get out of school depends entirely upon what you put into it.

44. I get blamed for lots of things that really aren't my fault.

45. Successful people have simply had better luck than unsuccessful people.

46. When I get into trouble, I know pretty well what it is that I did wrong.

47. It is easy to get good grades if the teacher likes you.

48. Bad luck explains a lot of my misfortunes.

49. Most teachers really care about their students.

50. Kids get into trouble at school because of other students.

51. I like to spend my free time doing things outdoors.

52. I plan to live in Seattle when I grow up.

53. I don't mind getting dirty if I am doing something I enjoy.

54. I enjoy doing things like drawing, painting, or making things out of clay.

55. I like to work in groups on projects.

56. I plan to get a college education.

57. I like to meet new people.

58. I work at keeping physically fit.

59. My favorite games are those in which I can compete as an individual against other people.

60. I like quiet activities when I can do things by myself away from other people.

61. I want to be able to travel a lot in my life.

62. I like to follow a project through from the beginning to the end.

63. After high school, I plan to spend about one to two years getting some type of special training.

64. I enjoy doing things which require physical hard work.

65. I like to be in charge and direct other people.

66. I like to think things through and come up with new ideas on how to accomplish a task.

67. Being able to help other people is very important in my life.

68. I like to work jigsaw puzzles.

69. If I had my choice, I would live in a very small town or near farmland.

70. I do my best work when I work alone on something.

71. It's very easy for me to talk to other people.

72. I enjoy going to school.

73. I don't mind doing the same thing everyday.

74. Making a lot of money is one of my chief goals in life.

75. I enjoy having my ideas carried out to produce something.

76. After high shcool, I want to get a job right away.

77. I like to give talks in front of the class.

78. When I have a job to do, I like to work at my own speed.

79. I like to play games which really make me think.

80. I make better grades than most of the other students in my class.

81. I do my best work when I am given specific directions.

82. I am interested in machines and how they work.

83. I avoid situations which could be dangerous.

84. It is easy for me to do fine work like threading needles or stringing beads.

85. I like a specific time during the day to do my work.

Name_____

Please list below the 3 jobs that you would like to have in the future:

My first choice is_____

My second choice is_____

My third choice is_____

DEPARTMENT	COURSE NO.	SECTION	INSTRUCTOR

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41

80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61

100	99	98	97	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81

120	119	118	117	116	115	114	113	112	111	110	109	108	107	106	105	104	103	102	101

FORM EAC 74T

59

PRINT AND CODE YOUR ASUW NUMBER

							TEST NO.
0	0	0	0	0	0	0	
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

INSTRUCTIONS: Use a No. 2 pencil. Make marks firm and fill the box. If you erase, do so completely.

PRINT YOUR NAME IN THE BOXES PROVIDED. THEN BLACKEN THE LETTER BOX BELOW WHICH MATCHES EACH LETTER OF YOUR NAME.

YOUR LAST NAME	YOUR FIRST NAME	MI

[APPENDIX C]

ANSWER SHEET

	True/False			True/False	
1.	T	F	26.	T	F
2.	T	F	27.	T	F
3.	T	F	28.	T	F
4.	T	F	29.	T	F
5.	T	F	30.	T	F
6.	T	F	31.	T	F
7.	T	F	32.	T	F
8.	T	F	33.	T	F
9.	T	F	34.	T	F
10.	T	F	35.	T	F
11.	T	F	36.	T	F
12.	T	F	37.	T	F
13.	T	F	38.	T	F
14.	T	F	39.	T	F
15.	T	F	40.	T	F
16.	T	F	41.	T	F
17.	T	F	42.	T	F
18.	T	F	43.	T	F
19.	T	F	44.	T	F
20.	T	F	45.	T	F
21.	T	F	46.	T	F
22.	T	F	47.	T	F
23.	T	F	48.	T	F
24.	T	F	49.	T	F
25.	T	F	50.	T	F

ANSWER SHEET -- Page 2

	True/False	
51.	T	F
52.	T	F
53.	T	F
54.	T	F
55.	T	F
56.	T	F
57.	T	F
58.	T	F
59.	T	F
60.	T	F
61.	T	F
62.	T	F
63.	T	F
64.	T	F
65.	T	F
66.	T	F
67.	T	F
68.	T	F
69.	T	F
70.	T	F
71.	T	F
72.	T	F
73.	T	F
74.	T	F
75.	T	F

	True/False	
76.	T	F
77.	T	F
78.	T	F
79.	T	F
80.	T	F
81.	T	F
82.	T	F
83.	T	F
84.	T	F
85.	T	F

This booklet contains questions about jobs, the job market, and career planning. Some questions ask about career facts; some ask about job requirements and skills; and others ask you to judge students' abilities, interests, and future job plans. Give the best answers you can.

All answers are to be marked on the answer sheet provided. Make no marks in the booklet. For each question, find the number of the question on your answer sheet and mark the space which corresponds to the letter of your answer. Completely erase any changed answers or any other marks on the answer sheet.

Answer all questions. If you are unsure of an answer, guess. There is no time limit, but work as rapidly as you can.

You must use a NUMBER TWO PENCIL. Ask for a pencil if you do not have one.

The questions begin on the next page.

PART 1. Choose the one best answer to each question. Mark the letter of your answer on the answer sheet.

1. A longshoreman might be expected to do which of the following?

A....give advice on boat construction
B....sell beachfront property
C....lift and carry heavy boxes
D....measure the length of lumber
E....operate a steamboat

2. A computer programmer needs to know how to do which of the following?

A....repair tape recorders
B..give artificial respiration
C....read mathematical symbols
D..replace broken windows
E....operate a television camera

3. A real estate salesman is best described by which of the following?

A....performs best under the direct supervision of others
B..likes to work with his hands
C....has good depth perception
D..is not afraid of heights
E....does not mind working on weekends

4. A surveyor is best described by which of the following?

A....enjoys classical music
B..is able to perform well under stress
C....does not mind large crowds of people
D..prefers to work evenings and nights
E....likes outdoor activities

5. A bookkeeper might be expected to do which of the following?

A....check for overdue library books
B..write book reviews
C....keep records of business transactions
D..arrange books in alphabetical order
E....operate a printing press

6. A stock clerk in a supermarket might be expected to do which of the following?

A....determine prices of items
B..dispense paychecks
C....cut and package meat
D..arrange employees' work schedules
E....shelve merchandise

7. A lens grinder might be expected to do which of the following?

A....adjust a television camera
B..work with precision tools
C....operate a concrete mixer
D..conduct eye examinations
E....advise people about stock market investments

8. Which of the following best describes the working hours of an insurance salesman?

A....irregular hours and weekends
B..regular hours five days a week
C....only nights
D..mostly mornings
E....only on weekends

9. A person who has a talent for public speaking might be successful in which occupation?

A....trial lawyer
B..model
C....family doctor
D..newspaper reporter
E....shoe salesman

10. Which of the following gives information about advanced education and training facilities throughout Washington State?

A....Mapping Your Education
B..Northwest Quarterly
C....Chamber of Commerce Weekly
D..Dictionary of Occupational Titles
E....Seattle Times

11. What technological advancement has most influenced the job market in the last ten years?

A....television
B..microwave heating devices
C....widespread use of computers
D..steam-powered engines

12. If supertankers bringing oil from Alaska were allowed to unload their oil cargo in the Puget Sound area, the most direct effect on the local job market might be:

A....increase in tourism and related industries
B..decreased banking and other financial operations
C....decreased need for doctors, lawyers, and other professional people
D..increased need for construction workers and other blue-collar workers

13. High rates of unemployment are likely to occur during a period of:

A....economic stability
B..warfare
C....economic expansion
D..inflation
E....recession

14. Which of the following represents a current trend in the job market?

A....increase in the number of women in professional jobs
B..longer work weeks
C....greater reliance on individuals rather than machines
D..decreased need for professional service jobs

15. Which of the following represents a current trend in the job market?

A....increase in middle-level technician jobs
B..few, if any, early retirements
C....increase in agriculture-related jobs
D..increase in assembly-line jobs

For each group below, select the line which best shows how a person may advance within an occupational field without additional formal education or training.

16. A....store cashier becomes store manager
B..nurse's aide becomes head nurse
C....dog groomer becomes veterinarian
D..welder becomes aeronautical engineer

17. A....reservation agent becomes airline pilot
B..school custodian becomes principal
C....lawyer becomes judge
D..short-order cook becomes dietitian

18. A....TV repairman becomes TV producer
B..swimming instructor becomes oceanographer
C....hospital orderly becomes surgeon
D..parts assembler becomes plant foreman

In each group below, choose the industry or occupational field which is not likely to be found in the Puget Sound area.

19. A....ranching
B..recreation
C....fishing
D..forestry

20. A....automobile assembly
B..pulpmills
C....shipbuilding
D..aerospace

---

21. Which one of the following is the best source of information about job duties and opportunities?

A....<u>The Encyclopedia Britannica</u>
B..<u>World Almanac</u>
C....<u>Scholastic Magazine</u>
D..<u>The Occupational Index</u>
E....<u>The Occupational Outlook Handbook</u>

22. Which one of the following would be most useful for detailed information about getting into college?

A....The World Book Encyclopedia
B..Webster's Collegiate Dictionary
C....Lovejoy's College Guide
D..Reader's Digest
E....The Education Index

23. Which one of the following pairs of occupations involves the same level of training and responsibility?

A....Tailor, Sales Clerk
B..Engineer, Banker
C....Tailor, Engineer
D..Banker, Sales Clerk

24. The occupational fields expected to grow most rapidly during the next ten years are:

A....Professional and service
B..Sales and crafts
C....Crafts and clerical
D..Labor and sales

25. Between 1910 and 1970, the industry employing the greatest number of workers changed from:

A....Agriculture to wholesale and retail trade
B..Manufacturing to agriculture
C....Wholesale and retail trade to manufacturing
D..Agriculture to manufacturing

26. In the 9th and 10th grades, plans about jobs and occupations should:

A....be clear
B..not rule out any possibilities
C....keep open the best possibilities
D..not be something to think about

27. Decisions about high school courses can have an effect on:

A....the kind of diploma one gets
B..the kind of training or education one can get after high school
C....later occupational choices
D..how much one likes school
E....all of these

28. Decisions about jobs should take into account:

A....strengths for what one is good at learning and doing.
B..what one likes to do
C....the kind of person one is
D..the chances for getting ahead in that kind of job
E....all of these

29. One of the things that great artists, musicians, and professional athletes have in common is the desire to:

A....make money
B..have large audiences
C....be the best there is at what they do
D..teach others to do what they do

30. Mary thinks she might like to become a computer programmer, but she knows little about computer programming. She is going to the library to find out more about it. The most important thing for Mary to know now is:

A....what the work is, what she would do in it
B..what the pay is
C....what the hours of work are
D..where she can get the right training

31. Jane likes her high school biology and general science courses best. She likes to do her schoolwork alone so she can concentrate. When she begins to think about her future occupation, she should consider:

A....Nurse
B..Accountant
C....Medical Laboratory Technician
D..Elementary School Teacher

32. Peter is the best speaker on the school debating team. The school yearbook describes him as "our golden-tongued orator--a real nice guy who can listen as well as talk--he could sell refrigerators to the Eskimos." Peter will probably graduate in the bottom half of his class, although his test scores show that he is very bright. His only good grades (mostly B's) are in business subjects. His poorest grades are in English and social studies (mostly C's).

Peter's desire to become a trial lawyer is not very realistic because:

A....with his grades he will have difficulty getting into a four year liberal arts college
B..he has poor grades in the subjects that are most important for law
C....there is much more to being a lawyer than being good at public speaking
D..all of the above are good reasons for thinking that Peter will have a hard time becoming a trial lawyer

33. The facts about Peter suggest that he should think about becoming:

A....an accountant
B..a salesman
C....an actor
D..a school counselor
E....a lawyer

34. Ernie took some tests which show that he might be good at clerical work. Ernie says, "I just can't see myself sitting behind a desk for the rest of my life. I'm the kind of guy who likes variety. I think being a traveling salesman would suit me fine." He should:

A....disregard the tests and do what he wants to do
B..do what the tests say since they know better than he does what he would be good at
C....look for a job which will let him use his clerical abilities but not keep him pinned to a desk
D..ask to be tested with another test since the results of the first one are probably wrong

35. Joe is very good with his hands and there isn't anybody in his class who has more mechanical aptitude. He is also good at art. His best subject at school is math. Joe likes all of these things.

What should Joe do? Should he:

A....look for an occupation in which he can use as many of his interests and abilities as possible?
B..pick an occupation which uses math since there is a better future in that than in art or in working with his hands?
C....decide which of these activities he is best at, or likes the most, and then pick an occupation which uses that kind of activity?
D..put off deciding about his future and wait until he loses interest in some of these activities?

36. Betty gets very good science grades but this isn't her favorite subject. The subject she likes best is art even though her grades in it are only average. Betty is most likely to do well in her future occupation if she:

A....forgets about her interest in art since she is so much better in science
B..doesn't worry about the fact that she isn't very good at art, because if you like something you can become good at it
C....looks for an occupation which uses both art and science, but more science than art
D..looks for an occupation which involves both science and art, but more art than science

37. Bob says he really doesn't care what kind of work he gets into once he leaves school as long as it is working with people. If this is all Bob cares about he is likely to make a bad choice because:

A....this kind of work usually requires a college degree
B..employers usually hire girls for such work
C....people look down on men who work with people because such work is usually done by girls
D..occupations in which one works with people can be very different from each other in the abilities and interests which are needed.

PART 2 Occupations are different in the amount of education required for employment. Match the occupation in Column A with the amount of education usually required (Column B) by making the letter of the correct answer on the answer sheet:

COLUMN A Occupation	COLUMN B Education
38. Stenographer	A. High School Graduation
39. Dental Technician	B. Apprenticeship Training
40. Family Doctor (Physician)	C. Technical School or Community College (2 year)
41. Mail Carrier	D. College Degree (4 year)
42. Plumber	E. Professional Degree Beyond College
43. Computer Operator	
44. Bank Clerk	
45. Social Worker	

PART 3 Many occupations use special tools. Below is a list of special tools or equipment and a list of occupations. Match the occupation in Column A with its equipment (Column B) by marking the letter of the correct answer on the answer sheet.

COLUMN A Occupation	COLUMN B Equipment
46. Electrician	A. Manikin
47. Bookkeeper	B. Ammeter
48. Bricklayer	C. Centrifuge
49. Dressmaker	D. Trowel
50. Medical Technician	E. Ledger

Identification_____

Below you are asked to identify skills which are necessary for specific jobs. Give the best answers you can, and work as rapidly as possible. You will be allowed 12 minutes to complete this portion.

1. List 4 skills that a teacher must have:

   a. _____

   b. _____

   c. _____

   d. _____

2. List 4 skills that a school bus driver must have:

   a. _____

   b. _____

   c. _____

   d. _____

3. List 3 skills that a chef and a carpenter have in common:

   a. _____

   b. _____

   c. _____

4. List 3 skills that an actor and a pro quarterback have in common:

   a. _____

   b. _____

   c. _____

5. List 3 skills that a veterenarian and a psychiatrist have in common:

   a. _____

   b. _____

   c. _____

6. List 3 skills that a typist and a mail sorter (Post Office) have in common:

a. _____

b. _____

c. _____

7. List 5 skills which you already have that could be required on a job:

a. _____

b. _____

c. _____

d. _____

e. _____

REANALYSIS OF 1974-75 COMPUTER GUIDANCE DATA

One of the components of the Career Alternatives Model (CAM) receiving attention in the evaluation of 1974-75 was the Computer Guidance program at the senior high school level. The evaluation team was particularly interested in how students using the Computer Guidance program for varying lengths of time scored on the Career Development Inventory (CDI) as developed by Super and Forrest. The mean scores as shown in Table 1 are taken from the CAM Final Evaluation Report, 1974-75. While these figures show significantly higher scores for the subgroup of CAM students using Computer Guidance, there existed no controls in the earlier analysis for any differences in general ability. Since the Computer Guidance program involved some degree of self-selection, there is always the possibility that differences between the groups other than the educational program in question may affect the outcome scores on the dependent measure.

In the Final Evaluation Report, 1974-75, students who had participated in the Computer Guidance program were reported to have scored significantly higher than the overall group of CAM students on all of the subscales and the total score. The largest difference (in terms of separation in standard deviation units) was observed on Subscale A with differences on the other two subscales showing a lesser effect. In addition to the difference observed between the groups which had the Computer Guidance and the overall CAM treatment, there was also a difference between the group which had spent one hour or less using the computer and the group which had more than one hour of computer usage. The finding suggested that the longer the participation in the Computer Guidance program, the higher the scores on the CDI.

As mentioned above, these results were somewhat troubling to both the evaluation team and the project staff. Even though appropriate parametric statistical procedures had been used, the subjects both self-selected themselves into the Computer Guidance program and decided on the amount of time spent on the computer. While there are a large number of possible differences between those who decide to use the Computer Guidance program and those who do not, the variable which seemed most necessary to try to exclude as an alternative explanation of the results was the basic intelligence of the subjects. The concerns were that scores on the CDI may be related to the intelligence of the subjects and that subjects who are more intelligent may be those that decide to investigate careers using the computer. In order to investigate this hypothesis and to eliminate the possible effects of differences in intelligence, a supplementary grant was obtained from the Washington State Commission for Vocational Education to reanalyze the data using the intelligence of the students as a covariate in an analysis of covariance using the levels of participation as the independent variable and scores on the CDI as the dependent measure.

The evaluation data for the Computer Guidance program included CDI scores of subjects from the 10th, 11th, and 12th grades at two high schools -- Evergreen and Glacier. The IQ's which were used for the covariate in the reanalysis were obtained from 10th-grade testing done in the school district. These tests were at most then two years old. The roster of students for the last three years for each high school was scanned to match the IQ's with the CDI test scores for all those students for whom data were available from the CAM project.

CAM evaluation data were available for a total of 325 students, 205 of whom came from the two high schools using Computer Guidance. Of these 205 students, 16 had more than one hour on the computer, 66 had one hour or less on the computer, and the remaining 123 had no Computer Guidance exposure. The reanalysis

was done for all students for whom IQ's could be found. This reduced the groups to ten with more than one hour on the computer, 51 with one hour or less, and 97 with no exposure. It is unfortunate that the small sample of students with more than one hour on the computer was reduced to as great a degree as it was. This unanticipated phenomenon reduces the power of the following tests to identify significant differences should they be present.

The results of the analysis of covariance provide uniformly nonsignificant tests of significance. The adjusted means are presented in Table 2. This adjusted mean is the predicted mean score for each of the groups if the intelligence level of each group were the same. The actual mean score of the groups is presented in parentheses immediately below the adjusted means. The most striking feature of the table is that it really appears that the group which spent the most time on the computer is different from the other groups. The adjusted means for this sample group are clearly higher than for the other two groups. The F's listed below each column of means, however, show that the differences did not prove significant at the commonly accepted five percent level of significance. This apparent paradox is directly related to the smallness of the sample of students who spent more than an hour on the computer. It is simply difficult to prove significance of differences when the sample size is only ten students.

The means for the covariate, the IQ scores, are also presented in Table 2. In general, brighter students are attracted to the computer. The average of all students involved in the program differs significantly from the students with no involvement. There appears to be some indication, however, that the amount of time spent on the computer is inversely related to intelligence. Further division of the one hour or less group into those who spent less than 31 minutes and those who spent 31-to-60 minutes produces a clear trend in the mean IQ's. The

group with less than 31 minutes had a mean IQ of 108.8, the group with 31-to-60 minutes had a mean of 103.2, while the group with greater than 60 minutes had a mean of 101.9. This effect of decreasing IQ associated with increased participation is interesting but not statistically significant.

The IQ's were obtained for the students in the other Highline District high school as well to determine whether the other findings reported in the Final Evaluation Report, 1974-75, were influenced by intelligence. Score-IQ pairings were obtained for 55 more students. An analysis of covariance was conducted using sex and school as the classifications of students. This showed no significant finding for either sex or school. This contradicts to some extent the finding of the earlier report indicating differences existing between the sexes in CDI scores. In inspecting the data, the females tend to score higher than the males on all subscales, but the effects are not significant. An analysis was also run to check on the effect of the OVIS. As reported in the final report, the difference between those having the OVIS and those not having it was non-significant.

As suspected, the results of the analysis of covariance differ from the results previously reported in the final report. In general, the students who were attracted to the Computer Guidance program tended to be those who were brighter than the students who did not use the computer. When the scores on the CDI subscales and total were compared for students who had the same average level of intelligence, there was no significant difference between the groups. Thus, the earlier result was at least partially a reflection of the differing levels of intelligence rather than differences caused by the Computer Guidance program.

While the overall test of significance as reported in the Final Evaluation Report, 1974-75, was changed due to the interference of intelligence, the

TABLE 1

Means for Computer Guidance Treatment Group on CDI Scales

CAM Treatment Group	Number of Students	Subscale			Total
		A	B	C	
Computer Guidance (up to 1 hour)	66	112.4	265.2	18.8	395.4
Computer Guidance (more than 1 hour)	16	121.4	295.3	20.0	436.7
Total CAM Students	327	106.6	257.6	18.0	382.3

TABLE 2

Adjusted Means and Tests of Significance for the CDI and Intelligence According to Student Involvement in Computer Guidance

Level of Involvement	Number of Students	Mean IQ	Career Development Inventory (CDI)[a]			
			Subscale			Total
			A	B	C	
None	97	96.8	104.3 (103.9)	256.2 (253.5)	18.7 (18.1)	379.2 (375.5)
One Hour or Less	51	105.6	109.5 (111.2)	257.7 (262.6)	18.3 (19.3)	385.6 (393.2)
More than One Hour	10	101.9	118.9 (119.5)	284.8 (286.5)	19.5 (19.8)	423.2 (425.8)
F Test for Mean Differences[b]		8.63	2.34	1.39	0.54	1.90

[a]The scores in parentheses below the adjusted means represent the actual mean score for the designated group.

[b]Critical values for $F_{.05} = 3.07$. Above tests are all analyses of covariances with two and 154 degrees of freedom with the exception of the test for IQ's which is an analysis of variance with two and 155 degrees of freedom.

CAREER DEVELOPMENT INVENTORY NAME _____ DATE _____

The Career Development Inventory (CDI) asks you about school, work, your future career, and some of the plans you may have made. The only right answers are the ones which are right for you. Later, some questions ask you about career facts; others ask you to judge plans of other students. Give the best answers you can.

Following the initial page of background information, you will find nine distinct sets of questions. The instructions for each set are explained in the test booklet. Please mark all answers directly on the test booklet and ask questions of the test monitor as needed. This is not a time test but you are urged to work as rapidly as you can.

Background Information

Please circle the number corresponding to the response that is right for you.

1. Please indicate your sex.	1 Female 2 Male
2. Please indicate your grade level.	1 10th grade 2 11th grade 3 12th grade
3. Have you taken the Ohio Vocational Interest Survey (VIS) within the past year?	1 Yes 2 No 3 Don't Remember
4. Did you use the Computer Guidance System (sometimes called Mr. Wizard) during the last school year (1974-75)?	1 Yes 2 No
5. How much time have you spent on the Computer Guidance System this school year (in 1975-76)?	1 None 2 0 - 30 minutes 3 31 - 60 minutes 4 61+ minutes
6. Have you taken the Armed Services Vocational Aptitude Battery (ASVAB)?	1 Yes 2 No 3 Don't Remember
7. Have you visited the Career Information Center (Room 154) since the beginning of this school year?	1 Yes 2 No

Your Future Occupation

In your present thoughts and plans, what kind of work would you like to do when you finish all of your education and training? What kind of occupation do you plan to enter? For example, bookkeeper, machinist, lawyer, registered nurse, small store owner, waitress, engineer, shop foreman, elementary teacher, truck driver, etc. Write the name(s) of the occupation(s) you have thought about on the lines below:

_____ _____

_____ _____

If you have given more than one occupation, put an "X" in front of your <u>first choice</u>, the one you prefer more than the others.

FINISHED? Please wait for further instructions. Thank you.

I. How much thinking and planning have you done in the following areas? What kinds of plans do you have? For each question below choose one of the following answers to show what you have done. Place the number corresponding to your selected response to the left of each item.

1) I have not given any thought to this.
2) I have given some thought to this, but haven't made any plans yet.
3) I have some plans, but am still not sure of them.
4) I have made definite plans, but don't know how to carry them out.
5) I have made definite plans, and know what to do to carry them out.

_____ 1. Finding out about educational and occupational possibilities by going to the library, sending away for information, or talking to somebody who knows about the possibilities.

_____ 2. Talking about career decisions with an adult who knows something about me.

_____ 3. Taking high school courses which will help me decide what line of work to go into when I leave school or college.

_____ 4. Taking high school courses which will help me in college, in job training, or on the job.

_____ 5. Taking part in school or out of school activities which will help me in college, in training, or on the job.

_____ 6. Taking part in school or after school activities (for example, science club, school newspaper, Sunday School teaching, volunteer nurse's aide) which will help me decide what kind of work to go into when I leave school.

_____ 7. Getting a part-time or summer job which will help me decide what kind of work I might go into.

_____ 8. Getting a part-time or summer job which will help me get the kind of job or training I want.

_____ 9. Getting money for college or training.

_____ 10. Dealing with things which might make it hard for me to get the kind of training or the kind of work I would like.

_____ 11. Getting the kind of training, education, or experience which I will need to get into the kind of work I want.

_____ 12. Getting a job once I've finished my education and training.

_____ 13. Doing the things one needs to do to become a valued employee who doesn't have to be afraid of losing his job or being laid off when times are hard.

_____ 14. Getting ahead (more money, promotions, etc.) in the kind of work I choose.

II. High School students differ greatly in the amount of time and thought they give to making choices. Use the statements below to compare yourself to the typical students of your sex in your grade on each of the following kinds of choices. On all except Item #22, place the number corresponding to your selected response on the space to the left of each item.

Compared to my classmates I am . . .

1) much below average, not as good as most
2) a little below average
3) average
4) a little above average
5) much above average, better than most

. . . in the amount of time and thought I give to:

_____ 15. Choosing high school courses.

_____ 16. Choosing high school activities.

_____ 17. Choosing out-of-school activities.

_____ 18. Choosing between college, junior college, business school, technical school, work, military service, marriage, homemaking, etc.

_____ 19. Choosing a college, branch of military service, wife or husband, etc.

_____ 20. Choosing an occupation for after high school, college, or job training.

_____ 21. Choosing a career in general.

22. How would you rate your plans for "after high school?" (Please circle the number corresponding to your appropriate response.)

1) Not at all clear or sure.
2) Not very clear
3) Some not clear, some clear.
4) Fairly clear.
5) Very clear, all decided.

III. Below are five possible answers to use in answering questions 23 through 33, questions about how much you know about the occupation you said you like best on page two. Mark the number of your choice to the left of each question.

I know . . .

1) hardly anything
2) a little
3) an average amount
4) a good deal
5) a great deal

. . . about:

_____ 23. What people really do on the job.

_____ 24. Specialties in the occupations.

_____ 25. Different places where people might work in this occupation.

_____ 26. The abilities and traits needed in the occupation.

_____ 27. The physical working conditions.

_____ 28. The education or training needed to get into the occupation.

_____ 29. The courses offered in high school that are the best for the occupation.

_____ 30. The need for new people in the occupation.

_____ 31. Different ways of entering the occupation.

_____ 32. The starting pay in the occupation.

_____ 33. The chances for getting ahead in the occupation.

IV. Here are five answers which can be used for questions 34 through 47. Use these answers to show whether or not you would go to the sources of information listed below for help in making your job or college plans. Mark the number of your choice on the space to the left of each question.

I would . . .

1) definitely not
2) probably not
3) not be sure whether to
4) probably
5) definitely

. . . go to:

_____ 34. Father or male guardian.

_____ 35. Mother or female guardian.

_____ 36. Brothers, sisters, or other relatives.

_____ 37. Friends.

_____ 38. Coaches of teams I have been on.

_____ 39. Minister, priest, or rabbi.

_____ 40. Teachers.

_____ 41. School counselors.

_____ 42. Private counselors, outside of school.

_____ 43. Books with the information I needed.

_____ 44. Audio or visual aids like tape recordings, movies, or computers.

_____ 45. College catalogues.

_____ 46. Persons in the occupation or at the college I am considering.

_____ 47. TV shows, movies, or magazines.

V. Here again are five answers which are to be used with the following items. This time use the statements to show which of the sources of information below have already given you information which has been helpful to you in making your job or college plans.

I have gotten . . .

1) no useful information
2) very little useful information
3) some useful information
4) a good deal of useful information
5) a great deal of useful information

. . . from:

_____ 48. Father or male guardian.

_____ 49. Mother or female guardian.

_____ 50. Brothers, sisters, or other relatives.

_____ 51. Friends.

_____ 52. Coaches of teams I have been on.

_____ 53. Minister, priest, or rabbi.

_____ 54. Teachers.

_____ 55. School counselors.

_____ 56. Private counselors, outside of school.

_____ 57. Books with the information I needed.

_____ 58. Audio or visual aids like tape recordings, movies, or computers.

_____ 59. College catalogues.

_____ 60. Persons in the occupation or at the college I am considering.

_____ 61. TV shows, movies, or magazines.

VI. Here, each question has its own set of possible answers. Please circle the number corresponding to your response.

62. Which of the following is the best source of information about job duties and opportunities?

1) The Encyclopedia Britannica
2) World Almanac
3) Scholastic Magazine
4) The Occupational Index
5) The Occupational Outlook Handbook

63. Which one of the following would be most useful for detailed information about getting into college?

1) The World Book Encyclopedia
2) Webster's Collegiate Dictionary
3) Lovejoy's College Guide
4) Reader's Digest
5) The Education Index

64. Which of the following pairs of occupations involves the same level of training and responsibility?

1) Tailor, Sales Clerk
2) Engineer, Banker
3) Tailor, Engineer
4) Banker, Sales Clerk

65. The occupational fields expected to grow most rapidly during the next ten years are:

1) Professional and Service
2) Sales and Crafts
3) Crafts and Clerical
4) Labor and Sales

66. Between 1910 and 1970, the industry employing the greatest number of workers changed from:

1) Agriculture to wholesale and retail trade
2) Manufacturing to agriculture
3) Wholesale and retail trade to manufacturing
4) Agriculture to manufacturing

VII. Occupations are different in the amount of education required for employment. Match the occupation in Column A with the amount of education usually required (Column B) by inserting the number of the correct answer to the left of the item in Column A.

COLUMN A Occupation	COLUMN B Education
_____ 67. Stenographer	1) High School Graduation
_____ 68. Dental Technician	2) Apprenticeship Training
_____ 69. Family Doctor (Physician)	3) Technical School or Community College (2-year)
_____ 70. Mail Carrier	4) College Degree (4-year)
_____ 71. Plumber	5) Professional Degree Beyond College
_____ 72. Computer Operator	
_____ 73. Bank Clerk	
_____ 74. Social Worker	

VIII. Many occupations use special tools. Below is a list of special tools or equipment and a list of occupations. Match the occupation in Column A with its equipment (Column B).

COLUMN A Occupation	COLUMN B Equipment
_____ 75. Electrician	1) Manikin
_____ 76. Bookkeeper	2) Ammeter
_____ 77. Bricklayer	3) Centrifuge
_____ 78. Dressmaker	4) Trowel
_____ 79. Medical Technician	5) Ledger

IX. Here again, each question has its own set of answers. Circle the number corresponding to your selected response.

80. In the 9th and 10th grades, plans about jobs and occupations should:

1) be clear.
2) not rule out any possibilities.
3) keep open the best possibilities.
4) not be something to think about.

81. Decisions about high school courses can have an effect on:

1) the kind of diploma one gets.
2) the kind of training or education one can get after high school.
3) later occupational choices.
4) how much one likes school.
5) all of these.

82. Decisions about jobs should take into account:

1) strengths, or what one is good at learning and doing.
2) what one likes to do.
3) the kind of person one is.
4) the chances for getting ahead in that kind of job.
5) all of these.

83. One of the things that great artists, musicians, and professional athletes have in common is the desire to:

1) make money.
2) have large audiences.
3) be the best there is at what they do.
4) teach others to do what they do.

84. Mary thinks she might like to become a computer programmer, but she knows little about computer programming. She is going to the library to find out more about it. The most important thing for Mary to know now is:

1) what the work is, what she would do in it.
2) what the pay is.
3) what the hours of work are.
4) where she can get the right training.

85. Jane likes her high school biology and general science courses best. She likes to do her schoolwork alone so she can concentrate. When she begins to think about her future occupation, she should consider:

1) Nurse.
2) Accountant.
3) Medical Laboratory Technician.
4) Elementary School Teacher.

86. Peter is the best speaker on the school debating team. The school yearbook describes him as "our golden-tongued orator--a real nice guy who can listen as well as talk--he could sell refrigerators to the Eskimos." Peter will probably graduate in the bottom half of his class, although his test scores show that he is very bright. His only good grades (mostly B's) are in business subjects. His poorest grades are in English and social studies (mostly C's).

Peter's desire to become a trial lawyer is not very realistic because:

1) with his grades he will have difficulty getting into a four-year liberal arts college.
2) he has poor grades in the subjects that are most important for law.
3) there is much more to being a lawyer than being good at public speaking.
4) all of the above are good reasons for thinking that Peter will have a hard time becoming a trial lawyer.

87. The facts about Peter suggest that he should think about becoming:

1) an accountant.
2) a salesman.
3) an actor.
4) a school counselor.
5) a lawyer.

88. Ernie took some tests which show that he might be good at clerical work. Ernie says, "I just can't see myself sitting behind a desk for the rest of my life. I'm the kind of guy who likes variety. I think being a traveling salesman would suit me fine." He should:

1) disregard the tests and do what <u>he</u> wants to do.
2) do what the tests say since they know better than he does what he would be good at.
3) look for a job which will let him use his clerical abilities but not keep him pinned to a desk.
4) ask to be tested with another test since the results of the first one are probably wrong.

89. Joe is very good with his hands and there isn't anybody in his class who has more mechanical aptitude. He is also good at art. His best subject at school is math. Joe likes all of these things.

What should Joe do? Should he:

1) look for an occupation in which he can use as many of his interests and abilities as possible?
2) pick an occupation which uses math since there is a better future in that than in art or in working with his hands?
3) decide which of these activities he is best at, or likes the most, and then pick an occupation which uses that kind of activity?
4) put off deciding about his future and wait until he loses interest in some of these activities?

90. Betty gets very good science grades but this isn't her favorite subject. The subject she likes best is art even though her grades in it are only average. Betty is most likely to do well in her future occupation if she:

1) forgets about her interest in art since she is so much better in science.

2) doesn't worry about the fact that she isn't very good at art, because if you like something you can become good at it.

3) looks for an occupation which uses both art and science, but more science than art.

4) looks for an occupation which involves both science and art, but more art than science.

91. Bob says he really doesn't care what kind of work he gets into once he leaves school as long as it is working with people. If this is all Bob cares about he is likely to make a bad choice because:

1) this kind of work usually requires a college degree.

2) employers usually hire girls for such work.

3) people look down on men who work with people because such work is usually done by girls.

4) occupations in which one works with people can be very different from each other in the abilities and interests which are needed.

Thank you for completing the survey. Your responses will be useful in evaluating career education efforts in our schools.

CAREER INFORMATION CENTER SURVEY

NAME _____ STUDENT NUMBER _____

Your high school has operated an extensive Career Information Center during the 1975-76 school year. This Career Information Center has provided a number of services to both students and faculty and has had as one of its major aims the provision of vocational information for students. The present survey is intended to survey the extent to which students have actually used the several services provided by the Career Center and the students' opinion of those services received. The survey also will be used to identify any relationships between use of the Career Information Center and knowledge of the working world. You are asked to complete successive parts of the questionnaire within the next 45 minutes and to return the survey instrument directly to the test administrator from the Bureau of School Service and Research, University of Washington. All analysis will be completed by the Bureau and your individual responses will remain confidential.

Part I -- Biographical Information

Please circle the number corresponding to the response that is right for you.

1. Please indicate your school.	1 Evergreen 2 Glacier 3 Highline 4 Mt. Rainier 5 Tyee
2. Please indicate your grade level.	1 10th grade 2 11th grade 3 12th grade
3. Please indicate your sex.	1 Female 2 Male
4. a) What are your plans for the year immediately following high school graduation? (Circle all that apply; if you have absolutely no plans following high school, please circle #6 for uncertain and proceed to Question #5.)	1 Continue Formal Education (as full-time student) 2 Continue Formal Education (as part-time student) 3 Work Full-Time (if job can be found) 4 Work Part-Time (if such a position can be found) 5 Other (please specify) _____ 6 Uncertain as to plans following high school
b) How certain are your plans as described in #4a above?	1 Quite Certain 2 Rather Tentative 3 Very Tentative
5. a) How many different classes are you taking at the present time?	1 one 2 two 3 three 4 four 5 five 6 six or more
b) How many of your classes have a definite vocational emphasis (i.e., the class is focused on teaching skills which are used in the world of work)?	1 one 2 two 3 three 4 four 5 five 6 six or more

Part II -- Use of Career Information Center Services

For each of the following service areas, please check first your familiarity with the service as listed. The critical question here is whether or not you are aware that the service exists in the Career Center. For those you are familiar with, you are asked next to indicate the extent of your use during the 1975-76 school year. Finally, for those services actually used, please indicate your own judgment as to whether the service was very helpful, somewhat helpful, or of little or no help.

Service Area	Familiar With Service		Your Level of Use			Value of Service to You		
	Yes	No	Very Much	Some	Not at All	Very Helpful	Somewhat Helpful	Little or No Help
Utilizing Computer Guidance System (sometimes called Mr. Wizard)								
Reviewing Materials and Pamphlets in the Career Center								
Discussing Career Plans with Career Information Center Staff Including Career Center Teacher Aides								
Taking Vocational or Career Tests (e.g., OVIS, ASVAB)								
Utilizing Job Placement Information Available in the Career Center								
Participating in a Career-Oriented Field Trip (using mini-bus)								

Part III -- Information About Jobs

The following are a set of questions testing your knowledge about jobs and related educational requirements. In each case, please circle the number corresponding to the best answer.

1. Which one of the following is the best source of information about job duties and opportunities?
   1 The Encyclopedia Britannica
   2 World Almanac
   3 Scholastic Magazine
   4 The Occupational Index
   5 The Occupational Outlook Handbook

2. Which one of the following would be most useful for detailed information about getting into college?
   1 The World Book Encyclopedia
   2 Webster's Collegiate Dictionary
   3 Lovejoy's College Guide
   4 Reader's Digest
   5 The Education Index

3. Which one of the following pairs of occupations involves the same level of training and responsibility?
   1 Tailor, Sales Clerk
   2 Engineer, Banker
   3 Tailor, Engineer
   4 Banker, Sales Clerk

4. The occupational fields expected to grow most rapidly during the next ten years are:
   1 Professional and service
   2 Sales and crafts
   3 Crafts and clerical
   4 Labor and sales

5. Between 1910 and 1970, the industry employing the greatest number of workers changed from:
   1 Agriculture to wholesale and retail trade
   2 Manufacturing to agriculture
   3 Wholesale and retail trade to manufacturing
   4 Agriculture to manufacturing

6. In the 9th and 10th grades, plans about jobs and occupations should:
   1 be clear
   2 not rule out any possibilities
   3 keep open the best possibilities
   4 not be something to think about

7. Decisions about high school courses can have an effect on:
   1 the kind of diploma one gets
   2 the kind of training or education one can get after high school
   3 later occupational choices
   4 how much one likes school
   5 all of these

8. Decisions about jobs should take into account:
   1 strengths, or what one is good at learning and doing
   2 what one likes to do
   3 the kind of person one is
   4 the chances for getting ahead in that kind of job
   5 all of these

9. One of the things that great artists, musicians, and professional athletes have in common is the desire to:
   1 make money
   2 have large audiences
   3 be the best there is at what they do
   4 teach others to do what they do

10. Mary thinks she might like to become a computer programmer, but she knows little about computer programming. She is going to the library to find out more about it. The most important thing for Mary to know now is:
   1 what the work is, what she would do in it
   2 what the pay is
   3 what the hours of work are
   4 where she can get the right training

11. Jane likes her high school biology and general science courses best. She likes to do her schoolwork alone so she can concentrate. When she begins to think about her future occupation, she should consider:
   1 Nurse
   2 Accountant
   3 Medical Laboratory Technician
   4 Elementary School Teacher

12. Peter is the best speaker on the school debating team. The school yearbook describes him as "our golden-tongued orator -- a real nice guy who can listen as well as talk -- he could sell refrigerators to the Eskimos." Peter will probably graduate in the bottom half of his class, although his test scores show that he is very bright. His only good grades (mostly B's) are in business subjects. His poorest grades are in English and social studies (mostly C's).

    Peter's desire to become a trial lawyer is not very realistic because:

    1 with his grades he will have difficulty getting into a four-year liberal arts college

    2 he has poor grades in the subjects that are most important for law

    3 there is much more to being a lawyer than being good at public speaking

    4 all of the above are good reasons for thinking that Peter will have a hard time becoming a trial lawyer.

13. The facts about Peter suggest that he should think about becoming:

    1 an accountant

    2 a salesman

    3 an actor

    4 a school counselor

    5 a lawyer

14. Ernie took some tests which show that he might be good at clerical work. Ernie says, "I just can't see myself sitting behind a desk for the rest of my life. I'm the kind of guy who likes variety. I think being a traveling salesman would suit me fine." He should:

    1 disregard the tests and do what <u>he</u> wants to do

    2 do what the tests say since they know better than he does what he would be good at

    3 look for a job which will let him use his clerical abilities but not keep him pinned to a desk

    4 ask to be tested with another test since the results of the first one are probably wrong

15. Joe is very good with his hands and there isn't anybody in his class who has more mechanical aptitude. He is also good at art. His best subject at school is math. Joe likes all of these things.

    What should Joe do? Should he:

    1 look for an occupation in which he can use as many of his interests and abilities as possible?

    2 pick an occupation which uses math since there is a better future in that than in art or in working with his hands?

    3 decide which of these activities he is best at, or likes the most, and then pick an occupation which uses that kind of activity?

    4 put off deciding about his future and wait until he loses interest in some of these activities?

16. Betty gets very good science grades but this isn't her favorite subject. The subject she likes best is art even though her grades in it are only average. Betty is most likely to do well in her future occupation if she:

    1 forgets about her interest in art since she is so much better in sciences

    2 doesn't worry about the fact that she isn't very good at art, because if you like something you can become good at it

    3 looks for an occupation which uses both art and science, but more science than art

    4 looks for an occupation which involves both science and art, but more art than science

17. Bob says he really doesn't care what kind of work he gets into once he leaves school as long as it is working with people. If this is all Bob cares about he is likely to make a bad choice because:

    1 this kind of work usually requires a college degree

    2 employers usually hire girls for such work

    3 people look down on men who work with people because such work is usually done by girls

    4 occupations in which one works with people can be very different from each other in the abilities and interests which are needed

---

Occupations are different in the amount of education required for employment. Match the occupation in Column A with the amount of education usually required (Column B) by inserting the number of the correct answer to the left of the item in Column A.

COLUMN A Occupation	COLUMN B Education
_____ 18. Stenographer	1 High School Graduation
_____ 19. Dental Technician	2 Apprenticeship Training
_____ 20. Family Doctor (Physician)	3 Technical School or Community College (2-year)
_____ 21. Mail Carrier	4 College Degree (4-year)
_____ 22. Plumber	5 Professional Degree Beyond College
_____ 23. Computer Operator	
_____ 24. Bank Clerk	
_____ 25. Social Worker	

Many occupations use special tools. Below is a list of special tools or equipment and a list of occupations. Match the occupation in Column A with its equipment (Column B).

COLUMN A Occupation	COLUMN B Equipment
_____ 26. Electrician	1 Manikin
_____ 27. Bookkeepter	2 Ammeter
_____ 28. Bricklayer	3 Centrifuge
_____ 29. Dressmaker	4 Trowel
_____ 30. Medical Technician	5 Ledger

Part IV -- Beliefs About Career and Life Decisions

Following are sentences which might describe you or what you believe. Read each sentence and decide whether you think that the sentence is true or false. Circle T if you decide that the sentence is true, and circle F if you decide that the sentence is false. Be sure to respond to ev[illegible] sentence.

	True	False	
1.	T	F	If I decide to do something, I always get it done.
2.	T	F	Teachers usually have good advice for someone who has a problem.
3.	T	F	I believe in luck.
4.	T	F	People who get fired from jobs are the ones who deserve it the most.
5.	T	F	Other people usually decide what is best for me.
6.	T	F	Getting a traffic ticket is mostly a matter of bad luck.
7.	T	F	The only way to get good grades is to study hard.
8.	T	F	Other people are often getting me into trouble.
9.	T	F	There's no use in planning because plans are usually changed by unexpected events.
10.	T	F	If I play around too much in school, I probably will never get a good job.
11.	T	F	Success depends mostly on knowing the right people.
12.	T	F	Trouble often finds me without my doing anything.
13.	T	F	I am responsible for the things that happen to me.
14.	T	F	It is almost impossible to get ahead if you don't know the right people.
15.	T	F	What is going to happen in my future is pretty much already determined.
16.	T	F	If you lose a contest, it is because you did not try hard enough.
17.	T	F	I depend on the teacher to tell me when I am doing a good job.
18.	T	F	Getting in trouble once in a while is something that just can't be helped.
19.	T	F	Students who win class elections are the ones who work the hardest.
20.	T	F	Other people are the greatest cause of my problems.
21.	T	F	Finding an interesting job is mainly a matter of luck.
22.	T	F	I have been unable to buy things that I wanted when I did not plan ahead and save for them.
23.	T	F	Pay raises are given to the workers that the boss likes the most.

24.	T	F	If I am late for dinner, it is usually not my fault.
25.	T	F	If I try hard, I can be anything I want to be.
26.	T	F	Low grades go to the students the teacher doesn't like.
27.	T	F	Many things happen to me that I don't know how to control.
28.	T	F	People who cannot find a good job have simply not tried hard enough to find one.
29.	T	F	Decisions by other people will determine my future.
30.	T	F	Students who fail tests are bad guessers.
31.	T	F	Being a hard worker is most important in getting ahead.
32.	T	F	If I don't understand something in class, it's usually because the teacher wasn't clear enough.
33.	T	F	On most jobs it takes a lot of luck to get everything done on time.
34.	T	F	When I don't do well on a test, it is because I did not study hard enough.
35.	T	F	To get most job promotions you need to know the right people.
36.	T	F	Most of the time I can't help doing the things that get me in trouble.
37.	T	F	If I really tried, I could become a class officer.
38.	T	F	Many teachers get angry at students for no good reason.
39.	T	F	Luck has been very important in my life.
40.	T	F	Teachers give low grades to those students who don't work hard enough.
41.	T	F	I don't have much control over what happens to me.
42.	T	F	Many people's problems are caused by bad luck.
43.	T	F	What you get out of school depends entirely upon what you put into it.
44.	T	F	I get blamed for lots of things that really aren't my fault.
45.	T	F	Successful people have simply had better luck than unsuccessful people.
46.	T	F	When I get into trouble, I know pretty well what it is that I did wrong.
47.	T	F	It is easy to get good grades if the teacher likes you.
48.	T	F	Bad luck explains a lot of my misfortunes.
49.	T	F	Most teachers really care about their students.
50.	T	F	Kids get into trouble at school because of other students.

Thank you for your assistance in completing this survey relating to the Career Information Center services in your school, and please return the completed survey form to the test administrator.

00099

CAREER INFORMATION CENTER SURVEY

NAME _____

During the 1975-76 school year, your school has operated a Career Information Center designed to provide vocational-oriented information and and guidance to both students and faculty. The present survey is intended to determine the impact of the Career Information Center upon the overall school program; specifically, the extent of faculty-Center interaction, faculty knowledge of Center services and opinions of those services, and the amount of career-oriented activities in the classroom. You are asked to complete the attached questionnaire and return it in the envelope provided to the Bureau of School Service and Research, University of Washington, no later than May 1, 1976. Please note that Part III is to be completed only by those directly involved in classroom teaching. The analysis of survey data will be completed by the Bureau and your individual responses will remain strictly confidential. Your assistance in this evaluation will be greatly appreciated.

School: _____

Subject(s) Taught (if any): _____

Grade Level(s) Taught (if any): _____

Part I.

1. What change, if any, has occurred in the amount of attention given to career concerns in your classroom this year? [Please circle the number corresponding to your response. Those persons not directly involved in classroom teaching should respond in relation to the school as a whole.]

   1 Decreased

   2 Remained the same

   3 Increased

2. The following is a list of student services provided by the Career Information Center. Please indicate your own level of familiarity with each service by checking (✓) the appropriate response column.

Service	Very Familiar with Service	Aware of Service but not Well Informed	Not Aware of Service
Computer Guidance System ("Mr. Wizard")	____	____	____
Availability of career pamphlets and other materials	____	____	____
Career Counseling with Career Information Center staff	____	____	____
Vocational or career testing (e.g., OVIS, ASVAB)	____	____	____
Availability of job placement information in the Center	____	____	____
Career-oriented field trips sponsored by the Center	____	____	____

Part II. For the questions that follow, select a single whole number which most closely approximates your response. Indicate your selection by placing the number in the space to the right of the scale.

1. How often have you been encouraged to visit your school's Career Information Center by either Center personnel or other school personnel?

   Never 0__1__2__3 Quite Often _____

2. How often have you actually visited the Career Information Center?

   Never 0__1__2__3 Quite Often _____

3. How often have you referred students to the Career Information Center for vocational guidance or other career-related information?

   Never 0__1__2__3 Quite Often _____

4. To what extent have your contacts with the Career Information Center personnel been initiated by <u>you</u> (rather than by Center personnel)?

   Not at All 0__1__2__3 Entirely _____

5. How much of an impact do you feel the Center has had in creating a career awareness at your school?

   None 0__1__2__3 Quite a Bit _____

Part III. Please respond to the following questions if you are directly involved in classroom teaching.

1. How much assistance have you received from the Career Information Center in obtaining career-oriented materials for use in the classroom?

   None 0__1__2__3 Quite a Bit _____

2. How often have you conferred with Center personnel specifically for the purpose of obtaining help in relation to career activities in the classroom?

   Never 0__1__2__3 Quite Often _____

3. How often do you attempt to incorporate career concepts and activities into your ongoing classroom curriculum?

   Never 0__1__2__3 Quite Often _____

4. How much of an impact do you feel the Career Information Center has had on the amount of attention given to career concerns in your classroom teaching?

   None 0__1__2__3 Quite a Bit _____

Part IV.

Additional Comments: _____

CE 009 668